CLINICAL PRACTICE GUIDELINES

AP

ADVANCED PARAMEDIC

2021 Edition (updated June 2023)

Pre-Hospital Emergency Care Council

PHECC Clinical Practice Guidelines

First Edition, 2001

Second Edition, 2004

Third Edition, 2009

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Pre-Hospital Emergency Care Council

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CLINICAL PRACTICE GUIDELINES

FOREWORD

This Handbook comprises the 2021 Edition Clinical Practice Guidelines (CPGs). These guidelines outline patient assessments and pre-hospital management for responders at:

RESPONDER LEVEL

- Cardiac First Responder
- First Aid Responder
- Emergency First Responder

REGISTERED PRACTITIONER

- Emergency Medical Technician
- Paramedic
- Advanced Paramedic

I am delighted that there are now 357 CPGs in total to guide integrated care across the six pre-hospital emergency care clinical levels. These CPGs ensure that responders and practitioners are practicing to best international standards and support PHECC's vision that people in Ireland receive excellent pre-hospital emergency care.

I would like to acknowledge the hard work and commitment the members of the Medical Advisory Committee have shown during the development of this publication, guided by Dr David Menzies (Chair). A special word of thanks goes to Dr Brian Power who retired in 2020 and has made an enormous contribution to the advancement of pre-hospital emergency care in Ireland. I want to acknowledge the PHECC Executive, for their continued support in researching and compiling these CPGs and paving the way for the future development of the pre-hospital emergency care continuum.

I recognise the contribution made by many responders and practitioners, whose feedback has assisted PHECC in the continual improvement and development of CPGs and welcome these guidelines as an important contribution to best practice in pre-hospital emergency care.

Jacqueline Burke

Dr Jacqueline Burke, Chairperson
Pre-Hospital Emergency Care Council

ACCEPTED ABBREVIATIONS

Advanced Paramedic ..... AP
Advanced Life Support ..... ALS
Airway, Breathing & Circulation ..... ABC
All Terrain Vehicle ..... ATV
Altered Level of Consciousness ..... ALoC
Automated External Defibrillator ..... AED
Bag Valve Mask ..... BVM
Basic Life Support ..... BLS
Blood Glucose ..... BG
Blood Pressure ..... BP
Basic Tactical Emergency Care ..... BTEC
Capillary Refill Time ..... CRT
Carbon Dioxide ..... CO_2
Cardiopulmonary Resuscitation ..... CPR
Cervical Spine ..... C-spine
Chronic Obstructive Pulmonary Disease ..... COPD
Clinical Practice Guideline ..... CPG
Continuous Positive Airway Pressure ..... CPAP
Degree ..... °
Degrees Celsius ..... °C
Dextrose (Glucose) 10% in water ..... $D_{10}W$
Dextrose (Glucose) 5% in water ..... D_5W
Do Not Resuscitate ..... DNR
Drop (gutta) ..... gtt
Electrocardiogram ..... ECG
Emergency Department ..... ED
Emergency Medical Technician ..... EMT
Endotracheal Tube ..... ETT

ACCEPTED ABBREVIATIONS

Foreign Body Airway Obstruction ..... FBAO
Fracture ..... #
General Practitioner..... GP
Glasgow Coma Scale ..... GCS
Gram..... g
Intramuscular ..... IM
Intranasal ..... IN
Intraosseous ..... IO
Intravenous..... IV
Joules ..... J
Kilogram ..... kg
Laryngeal Mask Airway ..... LMA
Mean Arterial Pressure ..... MAP
Medical Practitioner..... MP
Microgram ..... mcg
Milligram..... mg
Millilitre..... mL
Millimole..... mmol
Minute ..... min
Modified Early Warning Score..... MEWS
Motor Vehicle Collision ..... MVC
Myocardial Infarction ..... MI
Milliequivalent ..... mEq
Millimetres of mercury ..... mmHg
Nasopharyngeal airway ..... NPA
Nebulised ..... NEB
Negative decadic logarithm of the H+ ion concentration ..... pH

ACCEPTED ABBREVIATIONS

Orally (per os) ..... PO
Oropharyngeal airway..... OPA
Oxygen ..... O_2
Paramedic..... P
Peak Expiratory Flow Rate..... PEFR
Per rectum ..... PR
Per vagina ..... PV
Percutaneous Coronary Intervention ..... PCI
Personal Protective Equipment ..... PPE
Psychiatric Nurse ..... PN
Pulseless Electrical Activity ..... PEA
Pulseless Ventricular Tachycardia ..... pVT
Respiration rate ..... RR
Return of Spontaneous Circulation..... ROSC
Revised Trauma Score ..... RTS
Saturation of arterial Oxygen ..... SpO_2
Spinal Motion Restriction ..... SMR
ST Elevation Myocardial Infarction ..... STEMI
Subcutaneous..... SC
Sublingual..... SL
Supraventricular Tachycardia..... SVT
Systolic Blood Pressure ..... SBP
Therefore ..... ∴
Total body surface area ..... TBSA
Ventricular Fibrillation..... VF
Ventricular Tachycardia ..... VT
When necessary (pro re nata) ..... prn

ACKNOWLEDGEMENTS

The process of developing CPGs has been long and detailed. The quality of the finished product is due to the painstaking work of many people, who through their expertise and review of the literature, ensured a world-class publication.

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PHECC would like to thank and acknowledge all of the experts who contributed to the creation of these Clinical Practice Guidelines.

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ACKNOWLEDGEMENTS

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INTRODUCTION

Welcome to the 2021 edition of the PHECC Clinical Practice Guidelines. This edition has been a long time in development and reflects the significant effort and contribution to the new CPGs by so many people.

As ever, a robust development and review process has been applied to the new and revised CPGs, including a detailed and comprehensive quality assurance process.

Pre-Hospital Care in Ireland has evolved significantly since the first editions of the CPGs. The suite of care the CPGs now enable is progressive and transformative across all levels of responder and practitioner.

The impact of Covid-19 has influenced these CPGs, both in posing challenges in continuing the regular Medical Advisory Committee meetings and discussions, while also giving rise to a specific suite of vaccination CPGs that enable PHECC practitioners to support the national Covid-19 vaccination programme.

For the first time, we have CPGs that enable practitioners to not convey patients to hospital as a matter of default. The non-conveyance CPGs are a step towards more alternative care pathways for our patients, in recognition that the traditional hospital-centric model for emergency care is not always appropriate or feasible. This suite of non-conveyance CPGs will be a key area for expansion and development in the next term of the Medical Advisory Committee.

Further developments include the designation of certain CPGs and elements of other CPGs as 'non-core'. This non-core element replaces the previous process of 'exemptions' accommodated for certain CPGs and recognises that not all Licenced CPG Providers need to implement every single CPG.

I would like to express my sincere thanks to all who contributed to this edition of the CPGs including the members of the Medical Advisory Committee, those who submitted queries for consideration, speciality groups and clinical programmes who provided expert external advice and feedback.

In particular, I would like to thank Dr Brian Power who retired from PHECC in 2020. Brian created the first edition of the PHECC CPGs and has managed the process of CPG development since then, including the majority of the development work for this suite of CPGs. Brian's contribution to the advancement of pre-hospital emergency care in Ireland has been significant and is the framework that supports responders and practitioners still. Since Brian's retirement, Ricky Ellis kindly and ably stepped into the gap, continuing to support MAC in the finalisation of the CPGs before handing over to Ray Carney, PHECC's new Clinical Programme Manager. Thank you both.

Finally, thanks to you, the responders and practitioners who implement these CPGs. I believe these CPGs will enable you to continue to provide expert compassionate pre-hospital care to patients every day of the year. PHECC greatly values your work and also your feedback.

Dr David Menzies, Chair Medical Advisory Committee

Clinical Practice Guidelines (CPGs) and the practitioner

CPGs are guidelines for best practice and are not intended as a substitute for good clinical judgment. Unusual patient presentations make it impossible to develop a CPG to match every possible clinical situation. The practitioner decides if a CPG should be applied based on patient assessment and the clinical impression. The practitioner must work in the best interest of the patient within the scope of practice for his/her clinical level on the PHECC Register. Consultation with fellow practitioners and or medical practitioners in challenging clinical situations is strongly advised.

The CPGs herein may be implemented provided:

1. The practitioner is in good standing on the PHECC practitioner's Register – Credentialed.
2. The practitioner is acting on behalf of a Licensed CPG Provider (paid or voluntary) – Licensed.
3. The practitioner is privileged by the Licensed CPG Provider on whose behalf he/she is acting to implement the specific CPG – Privileged.
4. The practitioner has received training on, and is competent in, the skills and medications specified in the CPG being utilised.

The medication dose specified on the relevant CPG shall be the definitive dose in relation to practitioner administration of medications. The principle of titrating the dose to the desired effect shall be applied. The onus rests on the practitioner to ensure that he/she is using the latest versions of CPGs, which are available on the PHECC website www.phecc.ie

Definitions

Adult	A patient of 16 years or greater, unless specified on the CPG
Child	A patient between 1 and less than or equal to (≤) 15 years old, unless specified on the CPG
Infant	A patient between 4 weeks and less than 1 year old, unless specified on the CPG
Neonate	A patient less than 4 weeks old, unless specified on the CPG
Paediatric patient	Any child, infant or neonate

Classification of CPGs

The Taxonomy for Pre-Hospital Emergency Care CPGs has changed to a new method for configuring PHECC CPGs. There are now seventeen categories developed to group common themes and categories together.

Basic Life Support – ILCOR 2020

Basic life support CPGs contained within this publication are in accordance with International Liaison Committee on Resuscitation (ILCOR) guidelines 2020.

CPGs and the pre-hospital emergency care team

The aim of pre-hospital emergency care is to provide a comprehensive and coordinated approach to patient care management, thus providing each patient with the most appropriate care in the most efficient time frame.

In Ireland today, the provision of emergency care comes from a range of disciplines and includes responders (Cardiac First Responders, First Aid Responders and Emergency First Responders) and practitioners (Emergency Medical Technicians, Paramedics, Advanced Paramedics, Nurses and Doctors) from the statutory, private, auxiliary and voluntary services.

CPGs set a consistent standard of clinical practice within the field of pre-hospital emergency care. By reinforcing the role of the practitioner, in the continuum of patient care, the chain of survival and the golden hour are supported in medical and traumatic emergencies respectively.

CPGs guide the practitioner in assessment, treatment and disposition of patients who present with an acute illness or injury.

CPGs presume no intervention has been applied, nor medication administered, prior to the arrival of the practitioner. In the event of another practitioner or responder initiating care during an acute episode, the practitioner must be cognisant of interventions applied and medication doses already administered and act accordingly.

In this care continuum, the duty of care is shared among all responders/ practitioners of whom each is accountable for his/her own actions. The most qualified responder/ practitioner on the scene shall take the role of clinical lead. Explicit handover between responders/ practitioners is essential and will eliminate confusion regarding the responsibility for care.

When a practitioner of higher clinical level on scene deems it appropriate to take clinical lead, he/she should calmly state: "My name is xx, I am an AP/P/EMT, I am assuming clinical lead."

If the practitioner of higher clinical level on scene wishes to hand over clinical lead to another practitioner (who may be of equal or lower clinical level), he/she states to the practitioner: "My name is xx, I am an AP/P/EMT, you are now clinical lead."

The practitioner acknowledges immediately and accepts clinical lead. "I am now clinical lead"

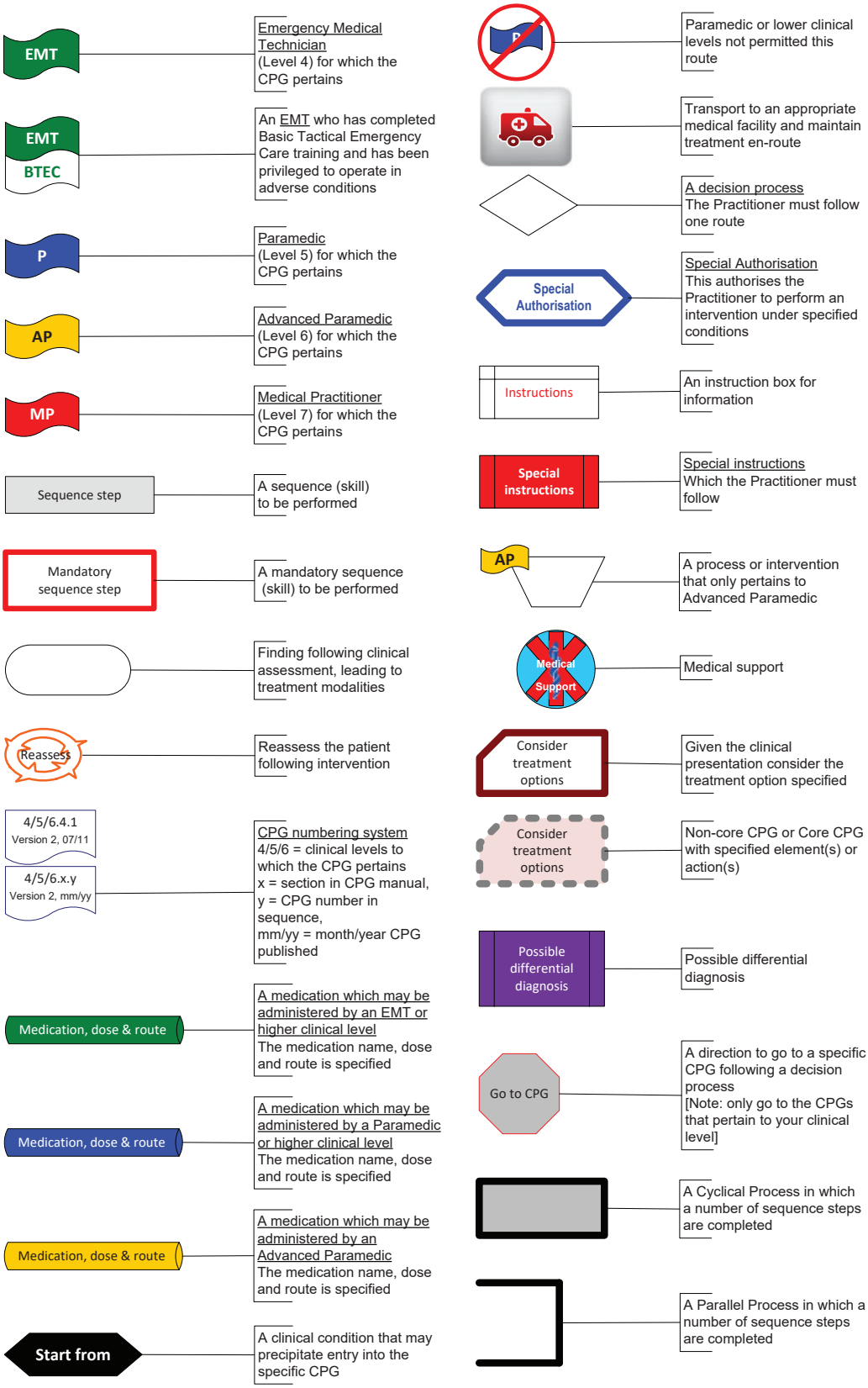
A clinical lead exchange should be recorded on the PCR in the 'continuity of care' section. There should never be any doubt as to who the clinical lead is on scene.

In the absence of a more qualified practitioner, the practitioner providing care during transport shall be designated the clinical lead as soon as practical.

INDEX - Advanced Paramedic CPGs

INDEX - Advanced Paramedic CPGs

CODES EXPLANATION



Pre-Hospital Emergency Care Council

Principles of general care (Practitioner)

Care principles are goals of care that apply to all patients. Scene safety, standard precautions, patient assessment, primary and secondary surveys and the recording of interventions and medications on the Patient Care Report (PCR) or the Ambulatory Care Report (ACR), are consistent principles throughout the guidelines and reflect the practice of practitioners. Care principles are the foundations for risk management and the avoidance of error.

PHECC Care Principles

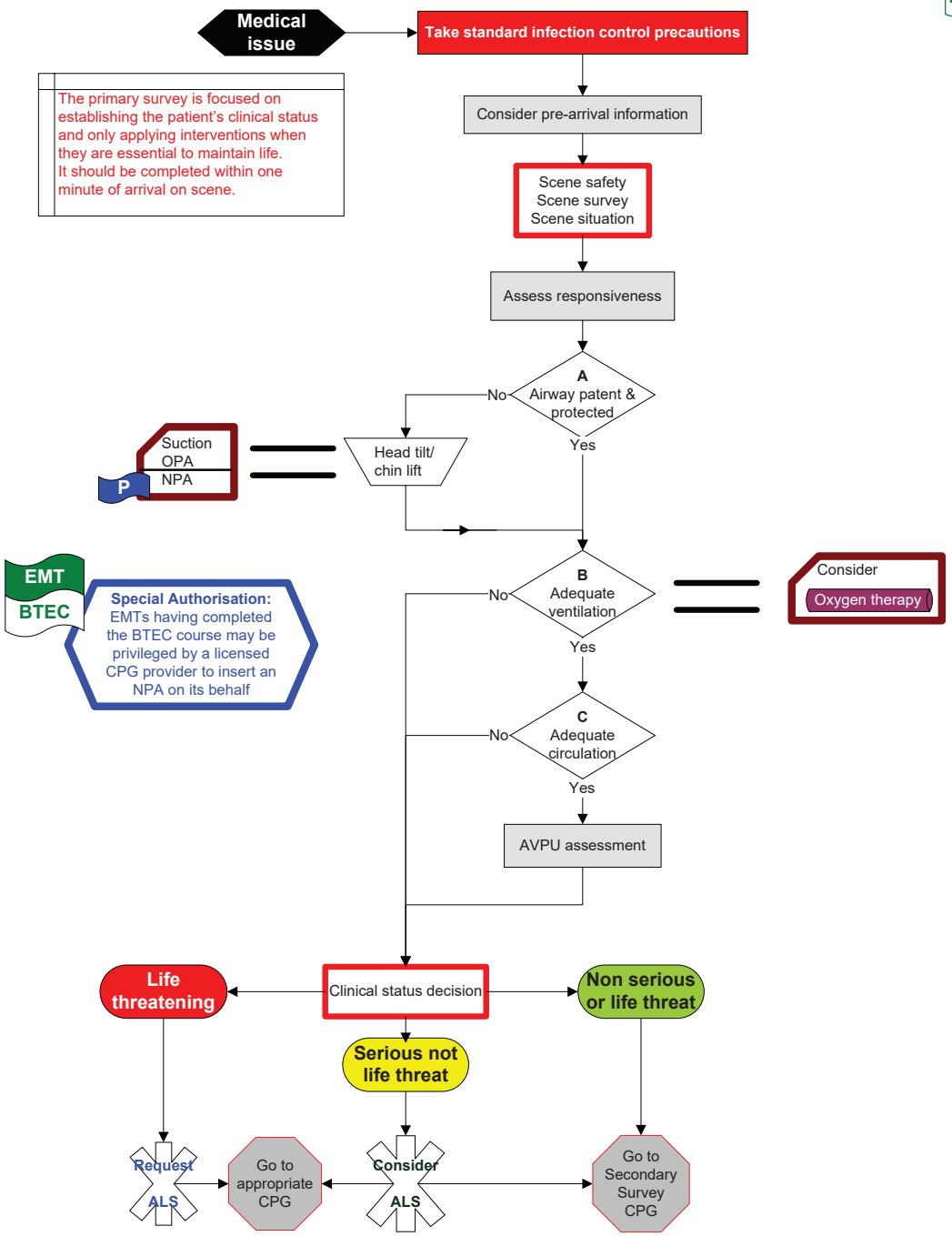
1. Ensure the safety of yourself, other emergency service personnel, your patients and the public.
    1.1. Ensure correct PPE is utilised in all situations and is compliant with latest guidance on standard, contact, droplet and airborne PPE. Place facemasks on patients when required. Handwashing and hand hygiene should be performed before and after all patient interactions. Utilise PPE checklists for correct donning and doffing procedures.
2. A person has capacity in respect to clinical decisions affecting themselves unless the contrary is shown (Assisted Decision-Making (Capacity) Act 2015).
3. Seek consent prior to initiating interventions and/or administering medications.
4. Identify and manage life-threatening conditions.
5. Ensure adequate ventilation and oxygenation.
6. Optimise tissue perfusion.
7. Make a working diagnosis, after considering differential diagnoses.
8. Provide appropriate pain relief within the scope of practice. Pain management:
    8.1. should not delay the diagnosis of conditions or injuries,
    8.2. should be implemented for all relevant patients,
    8.3. should commence within ten minutes on scene,
    8.4. goal is to reduce pain to a tolerable level,
    8.5. to take cognisance of immediate and short-term pain management requirements by administering appropriate combinations of analgesia.
9. Identify and manage other conditions.
10. Place the patient in the appropriate posture according to the presenting condition.
11. Ensure maintenance of normal body temperature (unless a CPG indicates otherwise).
12. Provide reassurance at all times.
13. Monitor and record patient's vital observations.

14. Maintain responsibility for patient care until handover to an appropriate practitioner.
15. Arrange transport to an appropriate medical facility, if clinically required, and in an appropriate time frame.
16. Complete a patient care record following an interaction with a patient.
17. Identify the clinical lead on scene; this shall be the most qualified practitioner on scene. In the absence of a more qualified practitioner, the practitioner providing care during transport shall be designated clinical lead as soon as practical.
18. Ambulances, medical rooms and equipment should be decontaminated as appropriate following an interaction with a patient.

Primary Survey Medical – Adult

4/5/6.1.2
Version 5, 12/2020

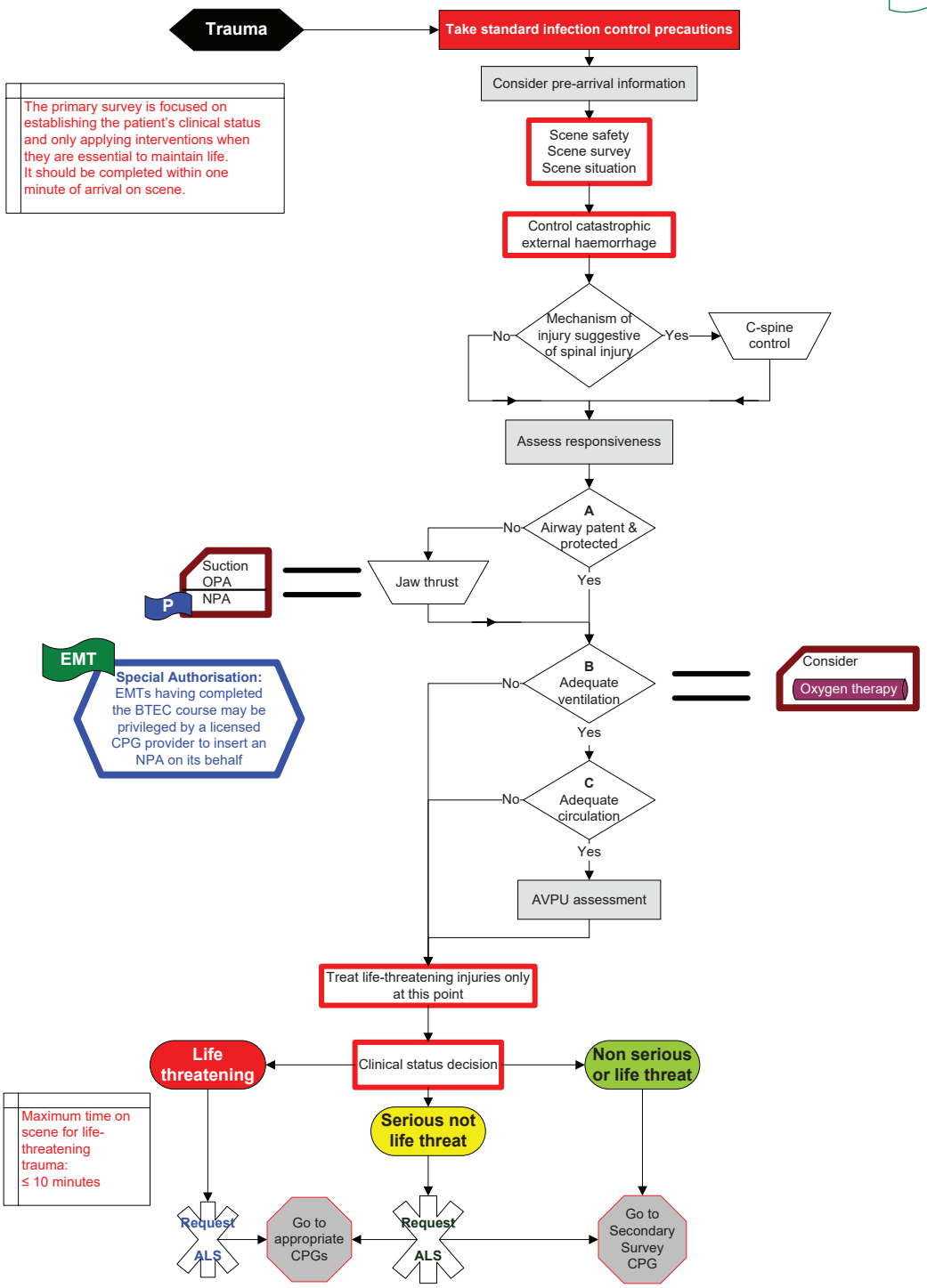
EMT P
BTEC AP



Primary Survey Trauma - Adult

4/5/6.1.3
Version 5, 03/2021

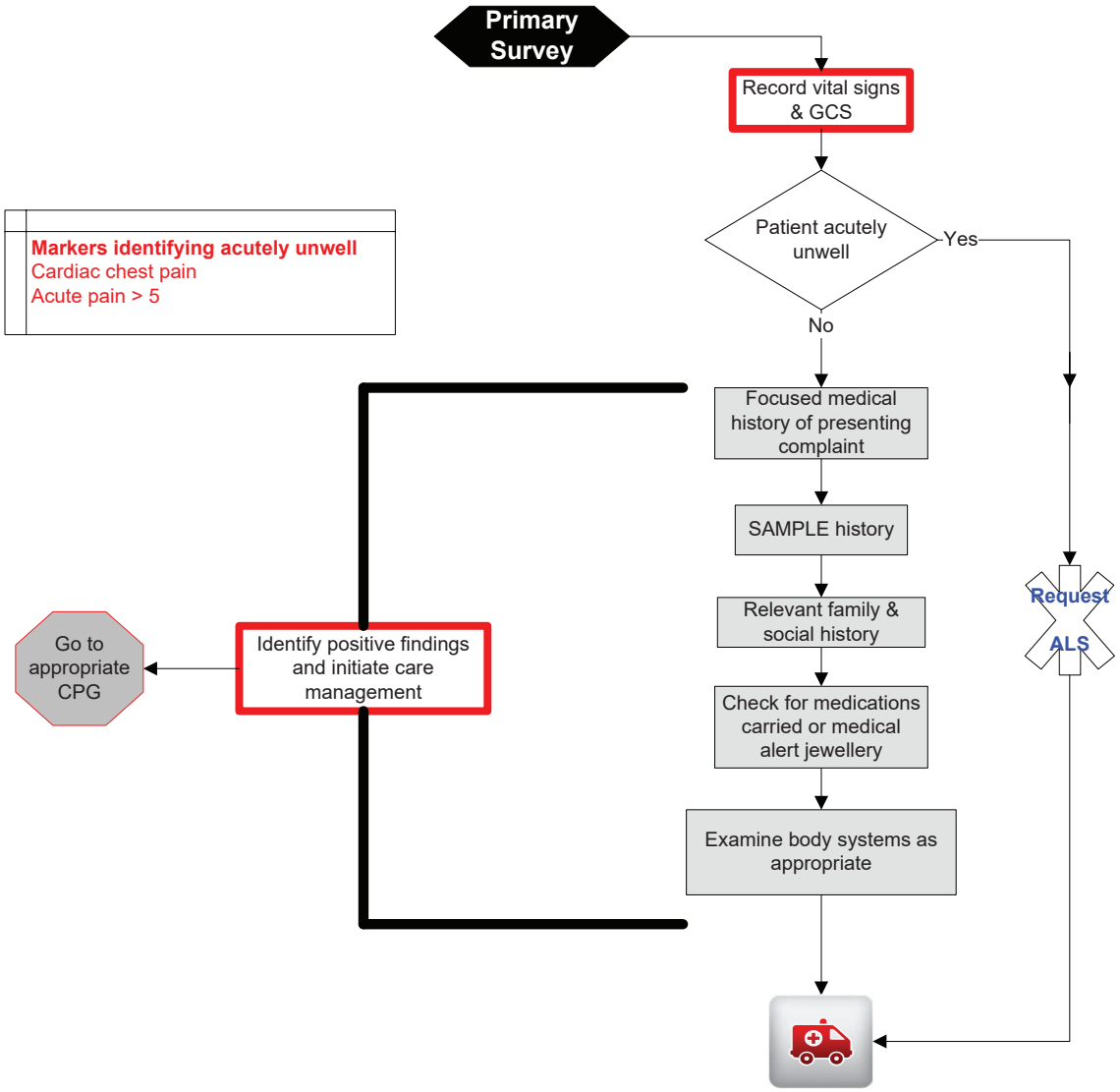
EMT P
BTEC AP



Secondary Survey Medical – Adult

5/6.1.5
Version 3, 02/2021

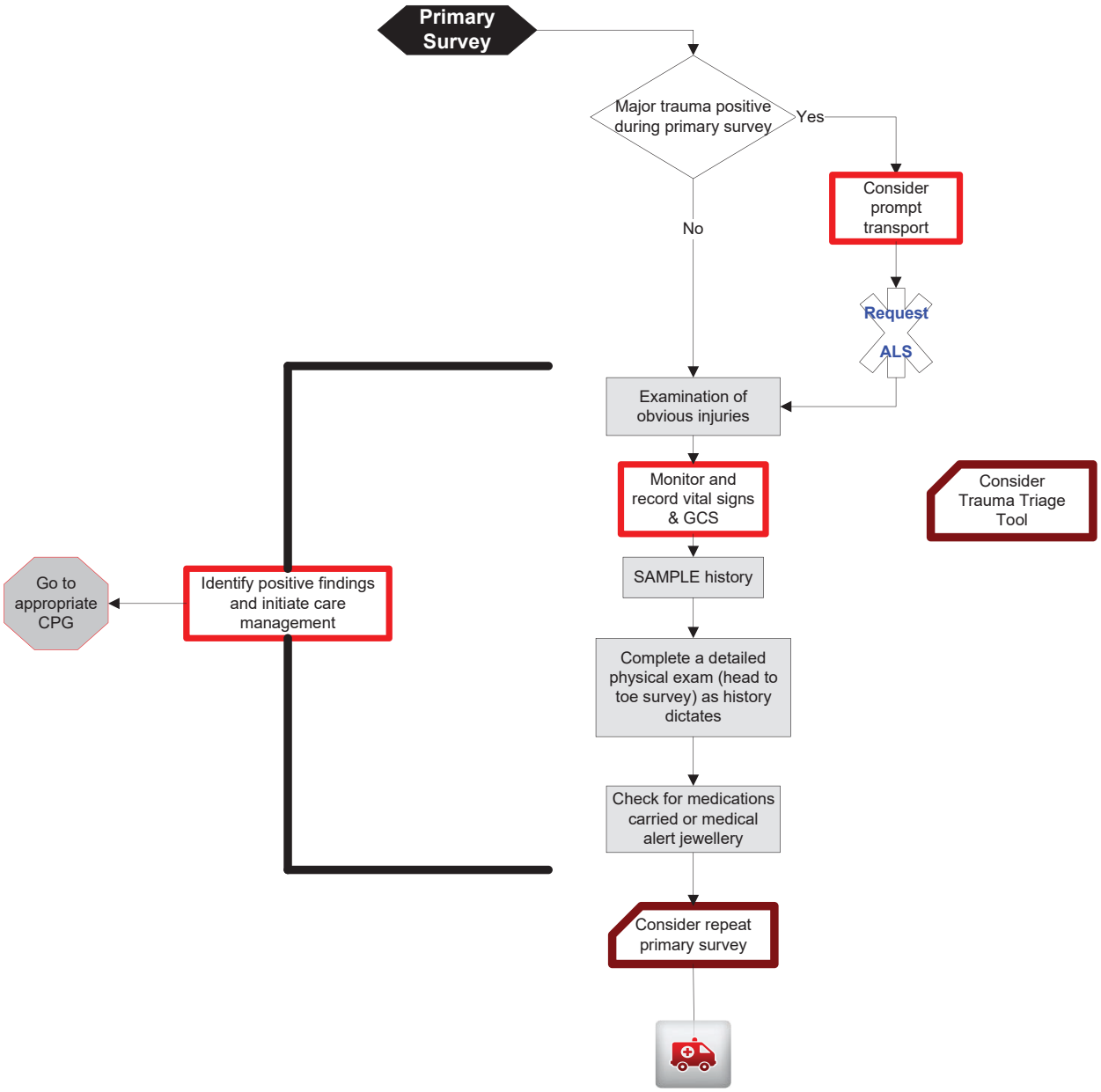
P AP



Secondary Survey Trauma – Adult

5/6.1.6
Version 4, 03/2023

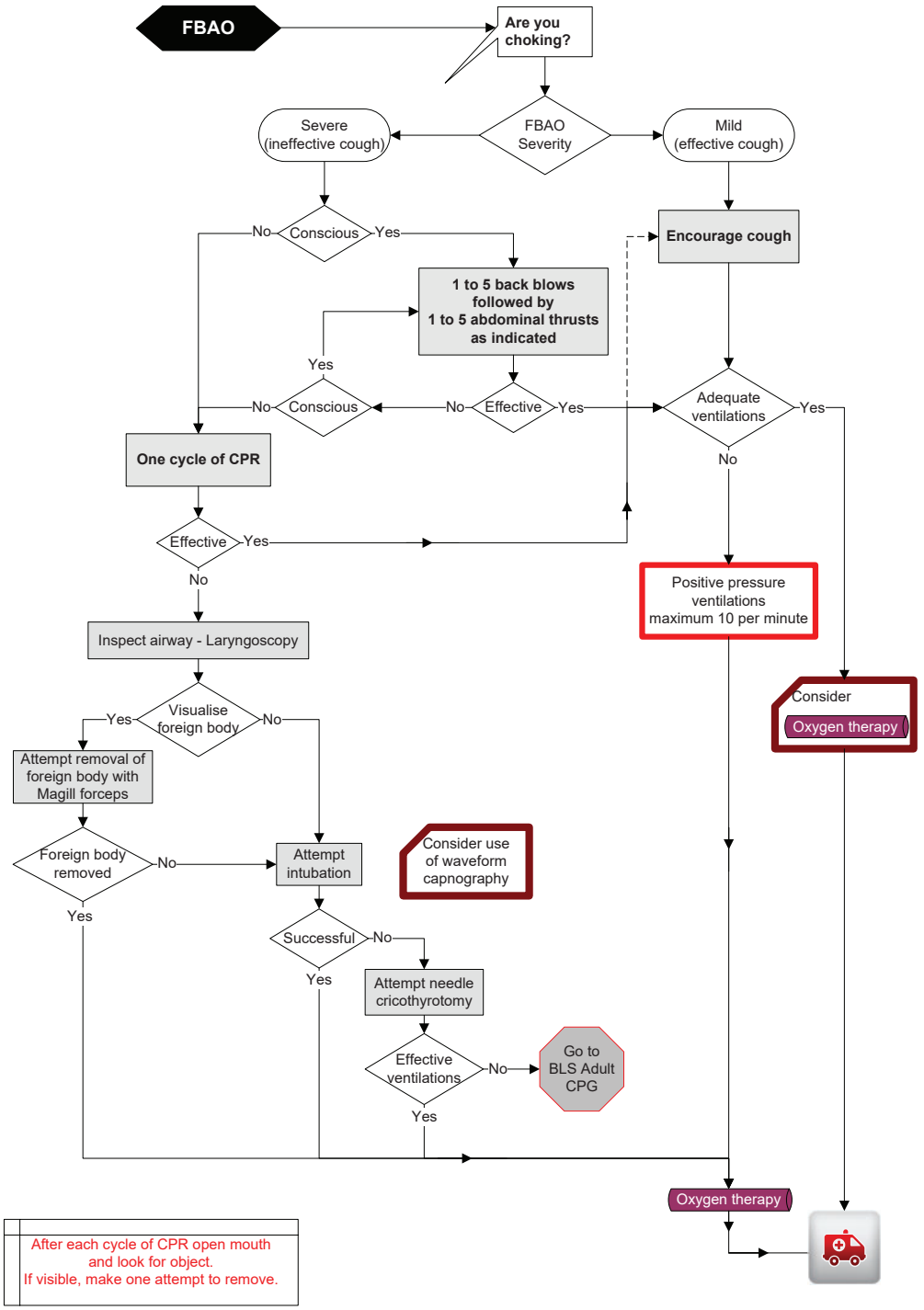
P AP



Foreign Body Airway Obstruction – Adult

6.2.1
Version 4, 12/2020

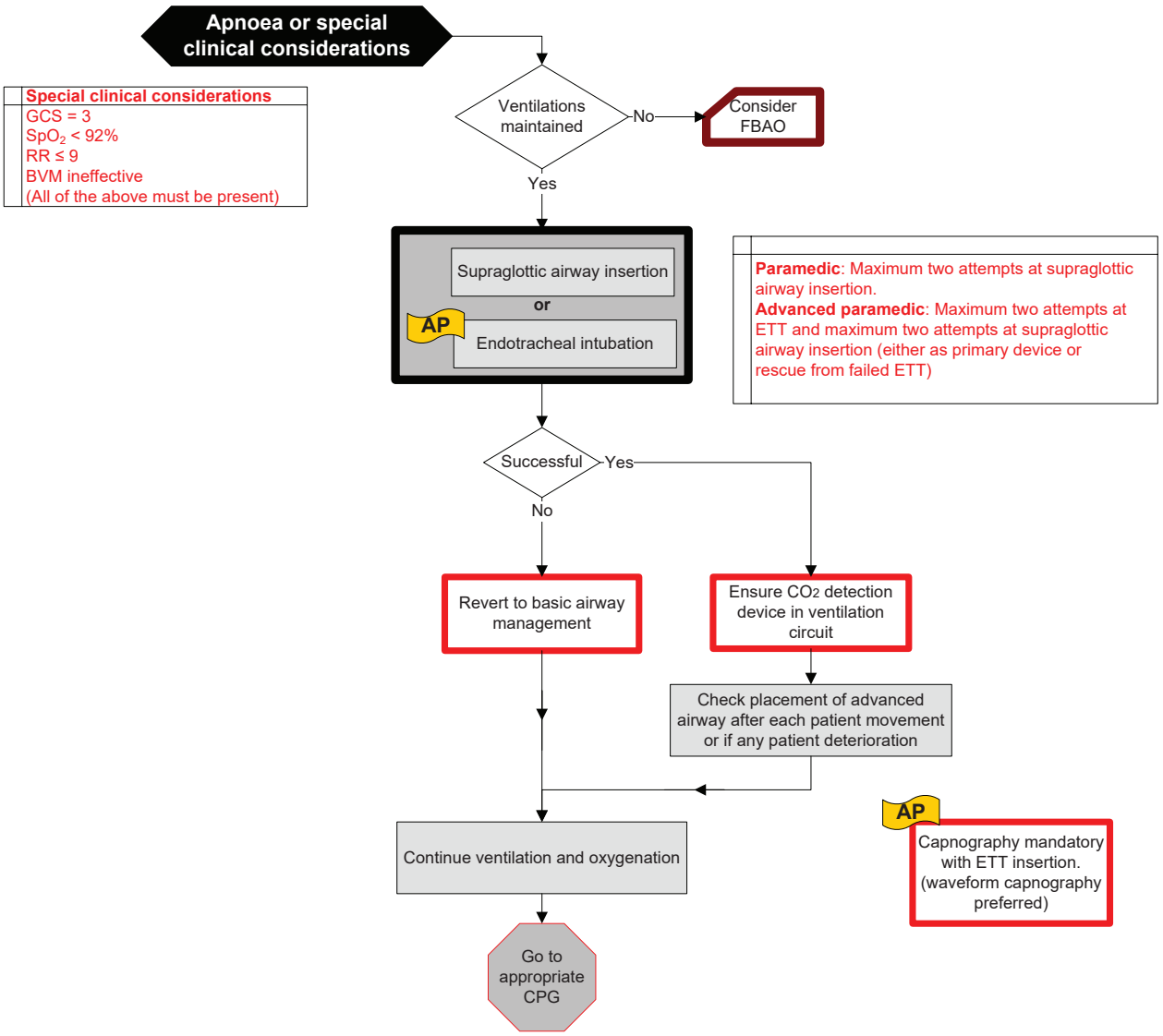
AP



Advanced Airway Management – Adult

5/6.2.2
Version 5, 12/2020

P AP

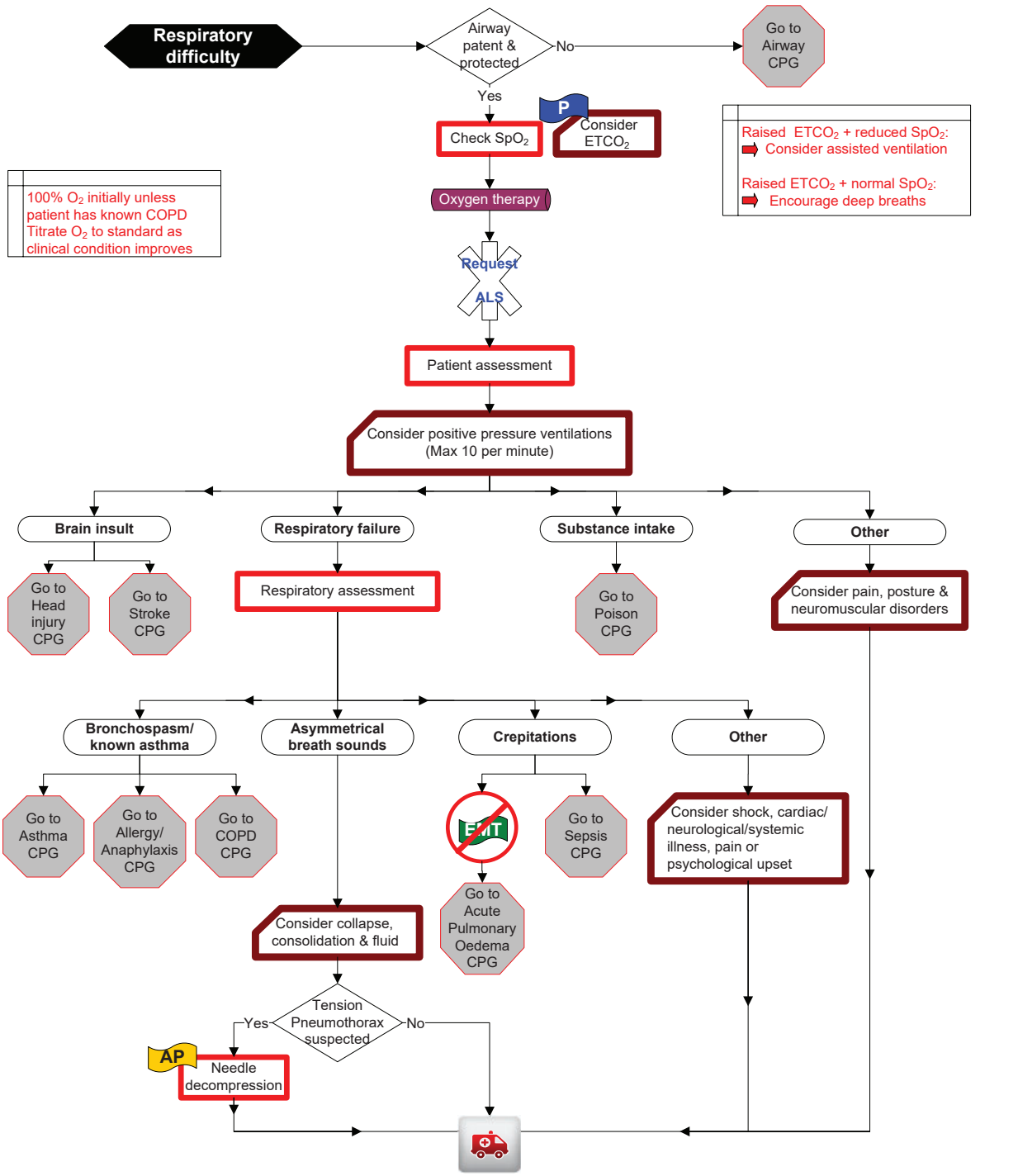


Following successful Advanced Airway management:-
i) Ventilate at 8 to 10 per minute.
ii) Unsynchronised chest compressions continuous at 100 to 120 per minute (if required)

Abnormal Work of Breathing – Adult

4/5/6.2.3
Version 3, 03/2021

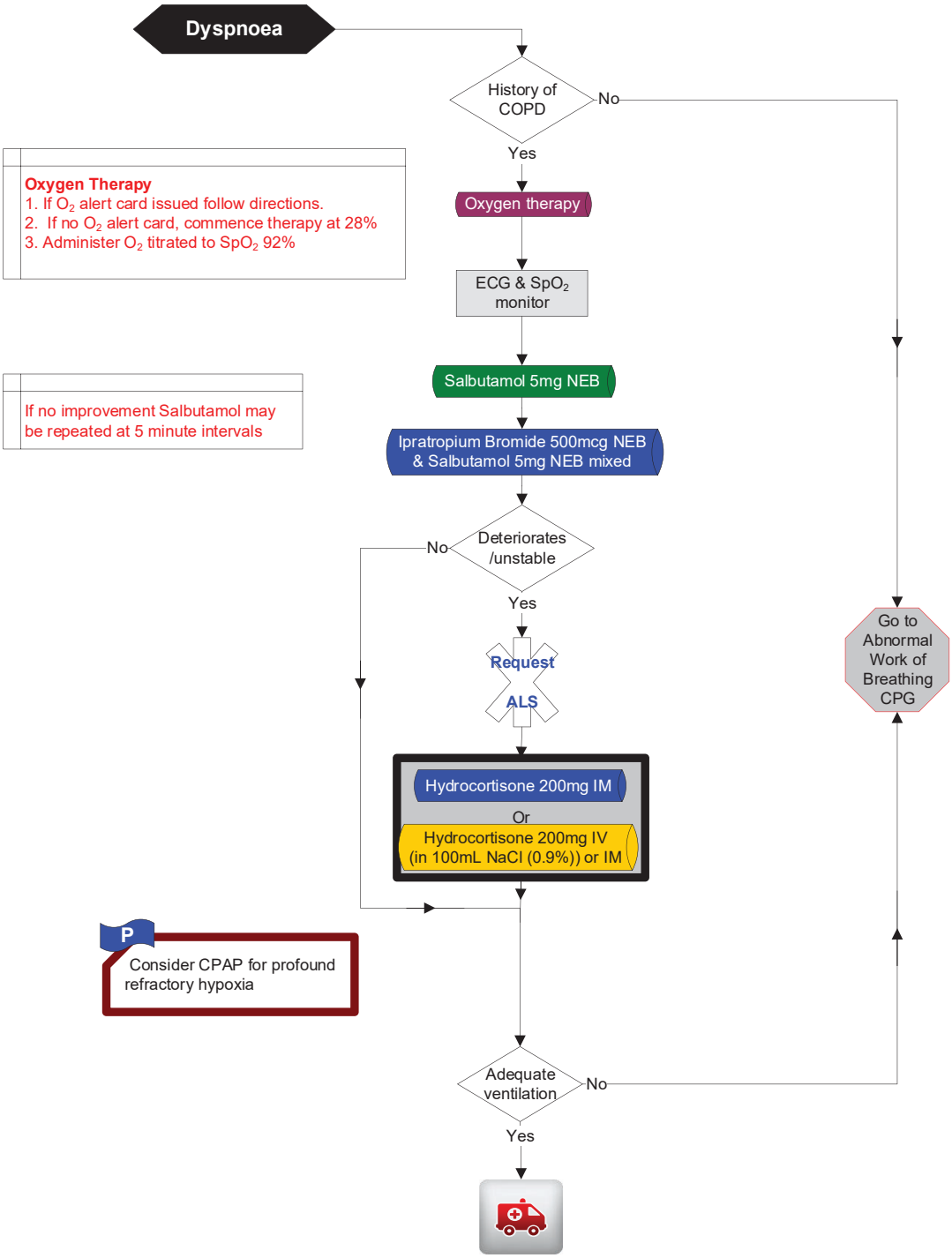
EMT P AP



Exacerbation of COPD

4/5/6.2.4
Version 3, 03/2021

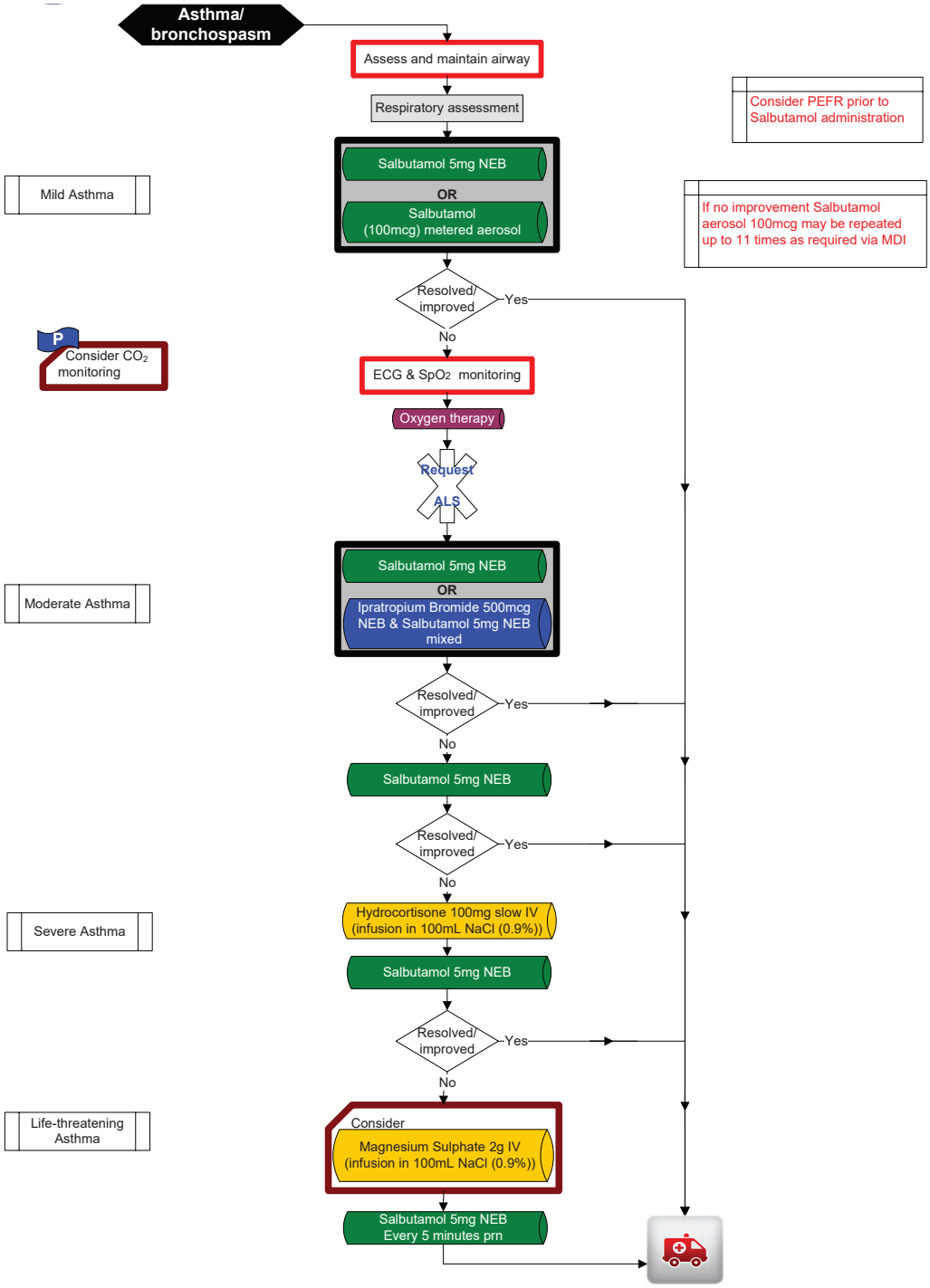
EMT P AP



Asthma – Adult

4/5/6.2.5
Version 5, 03/2021

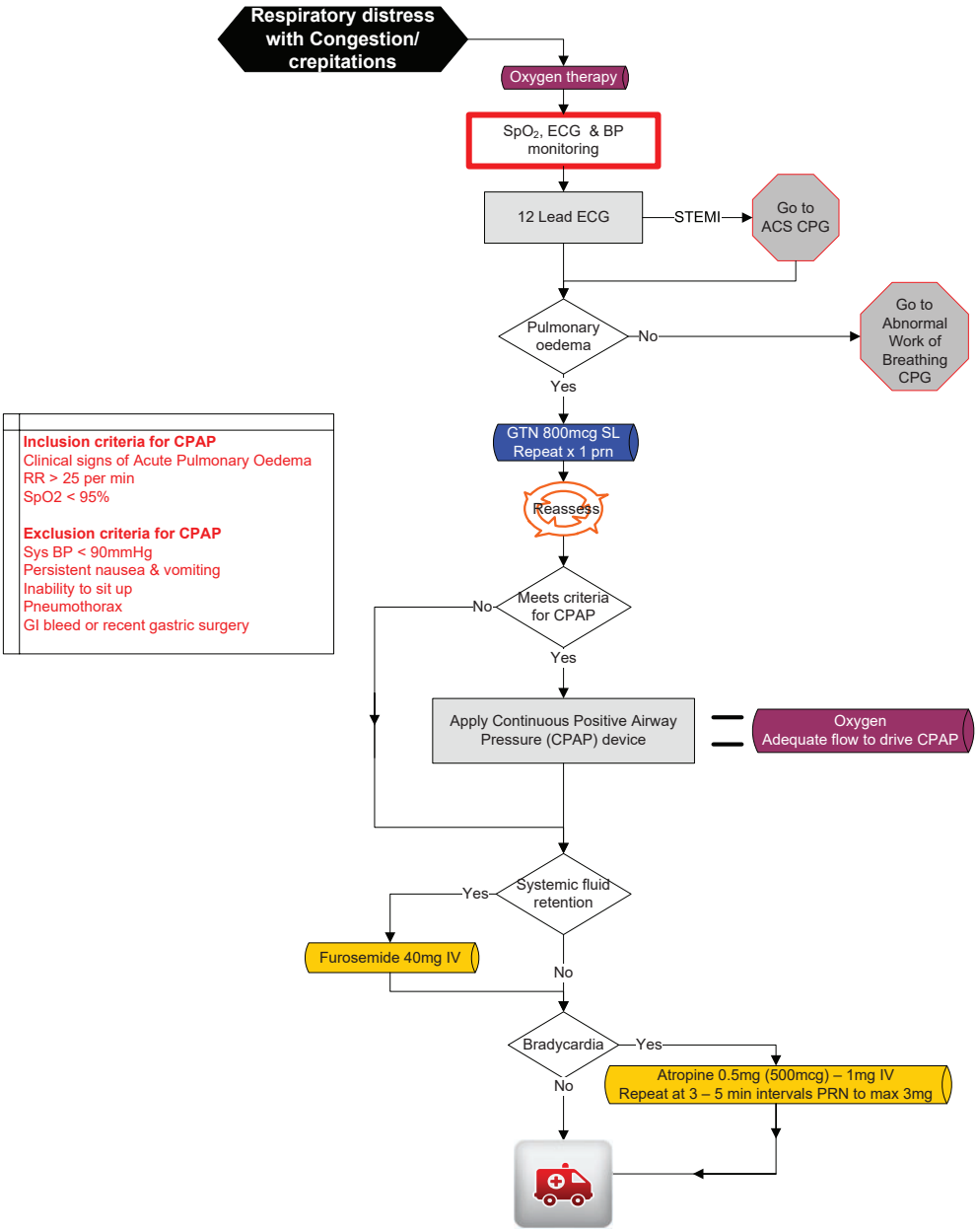
EMT P AP



Acute Pulmonary Oedema – Adult

5/6.2.6
Version 2, 03/2021

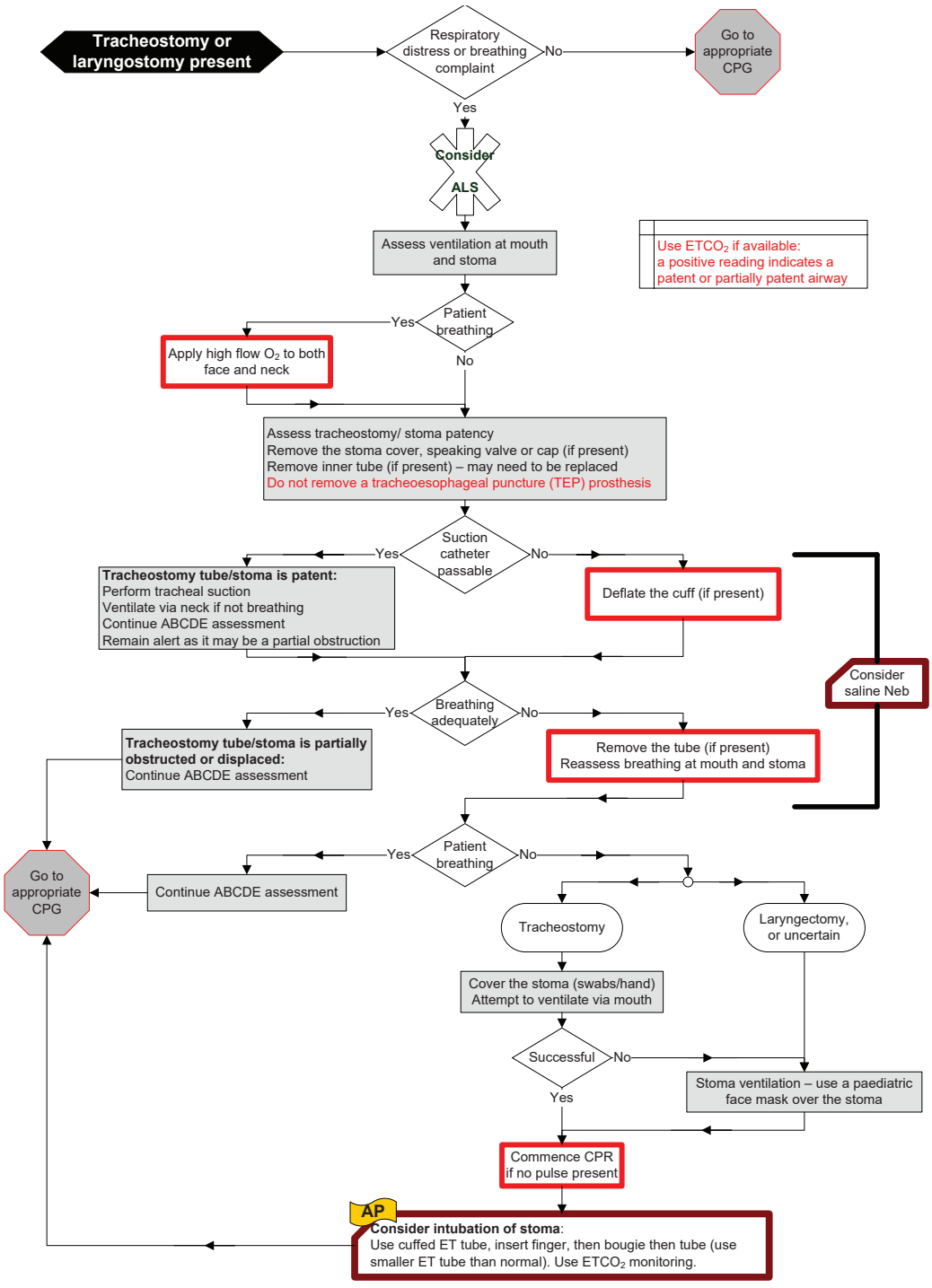
P AP



Emergency Tracheostomy Management

4/5/6.2.7
Version 2, 03/2021

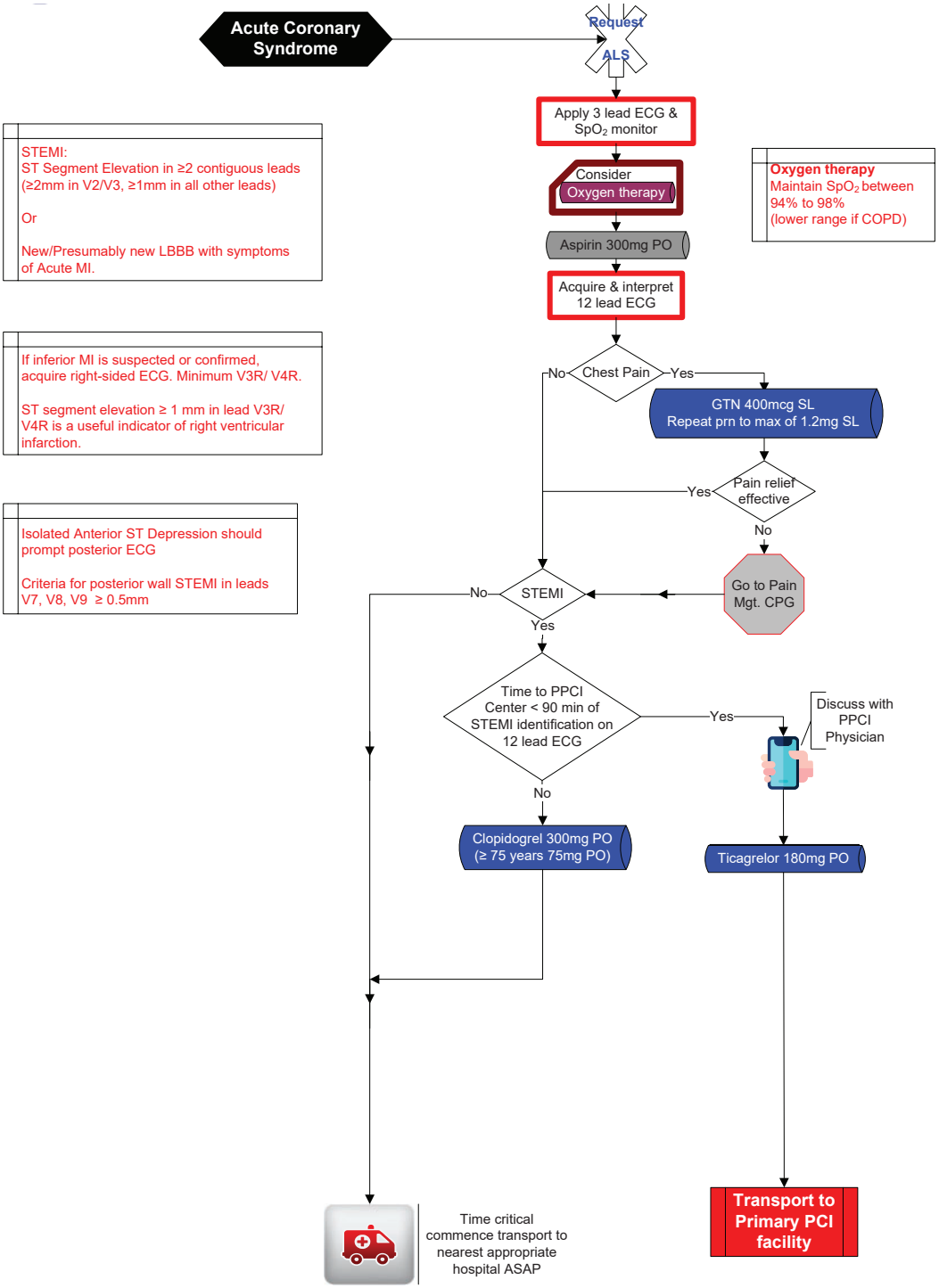
EMT P AP



Acute Coronary Syndrome

5/6.3.1
Version 8, 03/2021

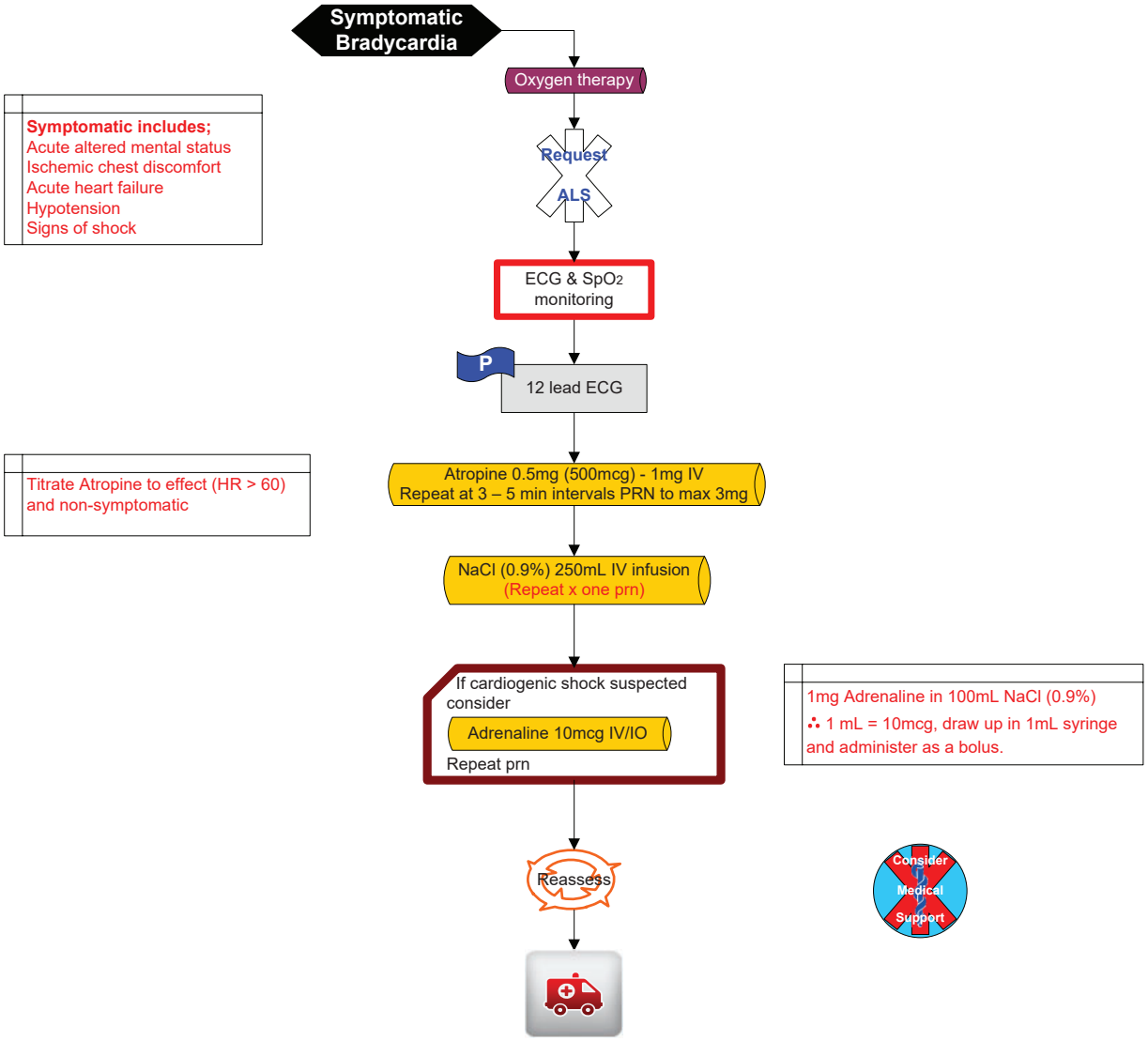
P AP



Symptomatic Bradycardia – Adult

4/5/6.3.2
Version 4, 01/2021

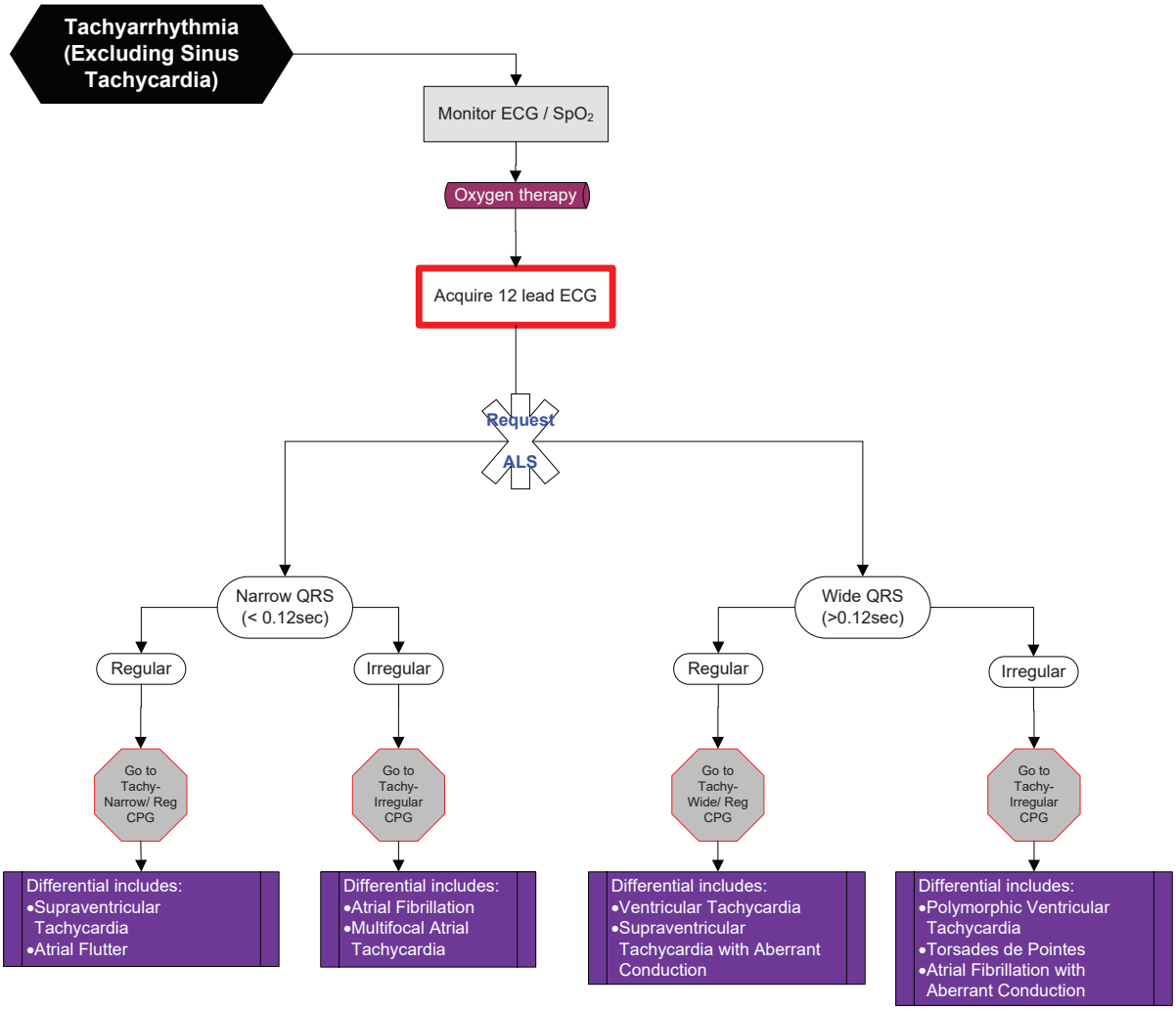
EMT P AP



Tachyarrhythmia Overview

5/6.3.3
Version 5, 04/2021

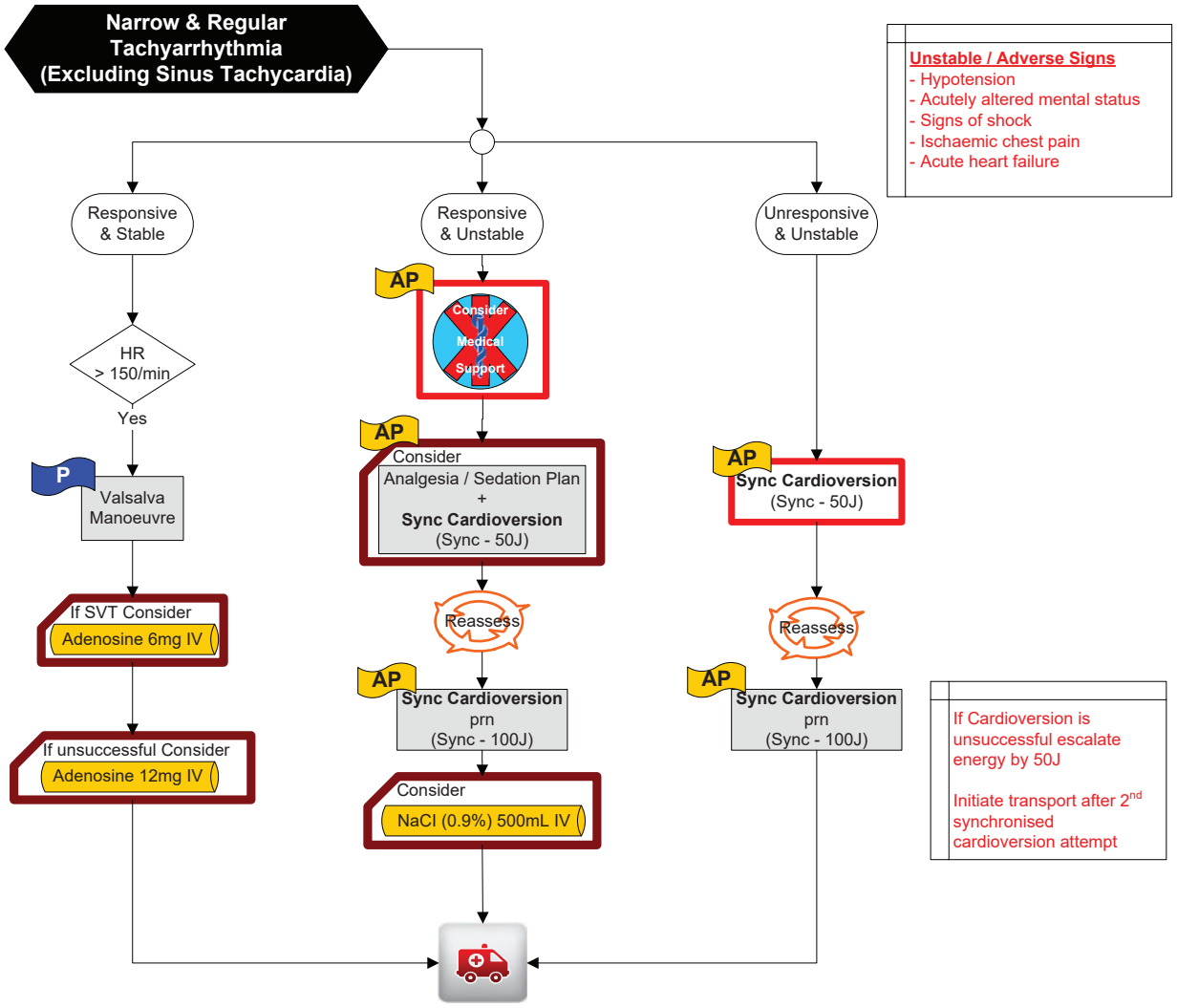
P AP



Tachyarrhythmia Narrow QRS / Regular Rate - Adult

5/6.3.4
Version 1, 03/2021

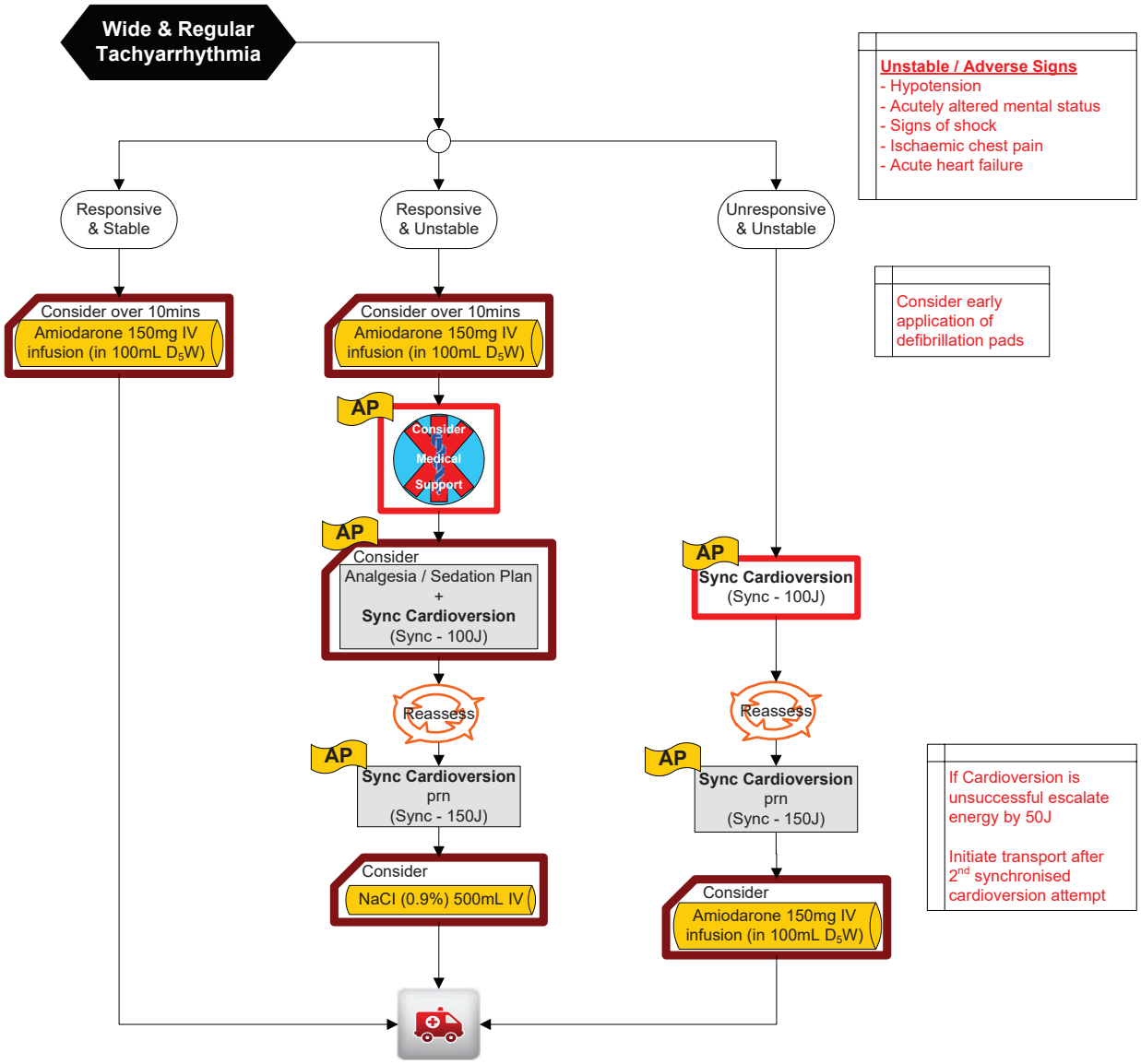
P AP



Tachyarrhythmia Wide QRS / Regular Rate - Adult

6.3.5
Version 1, 03/2021

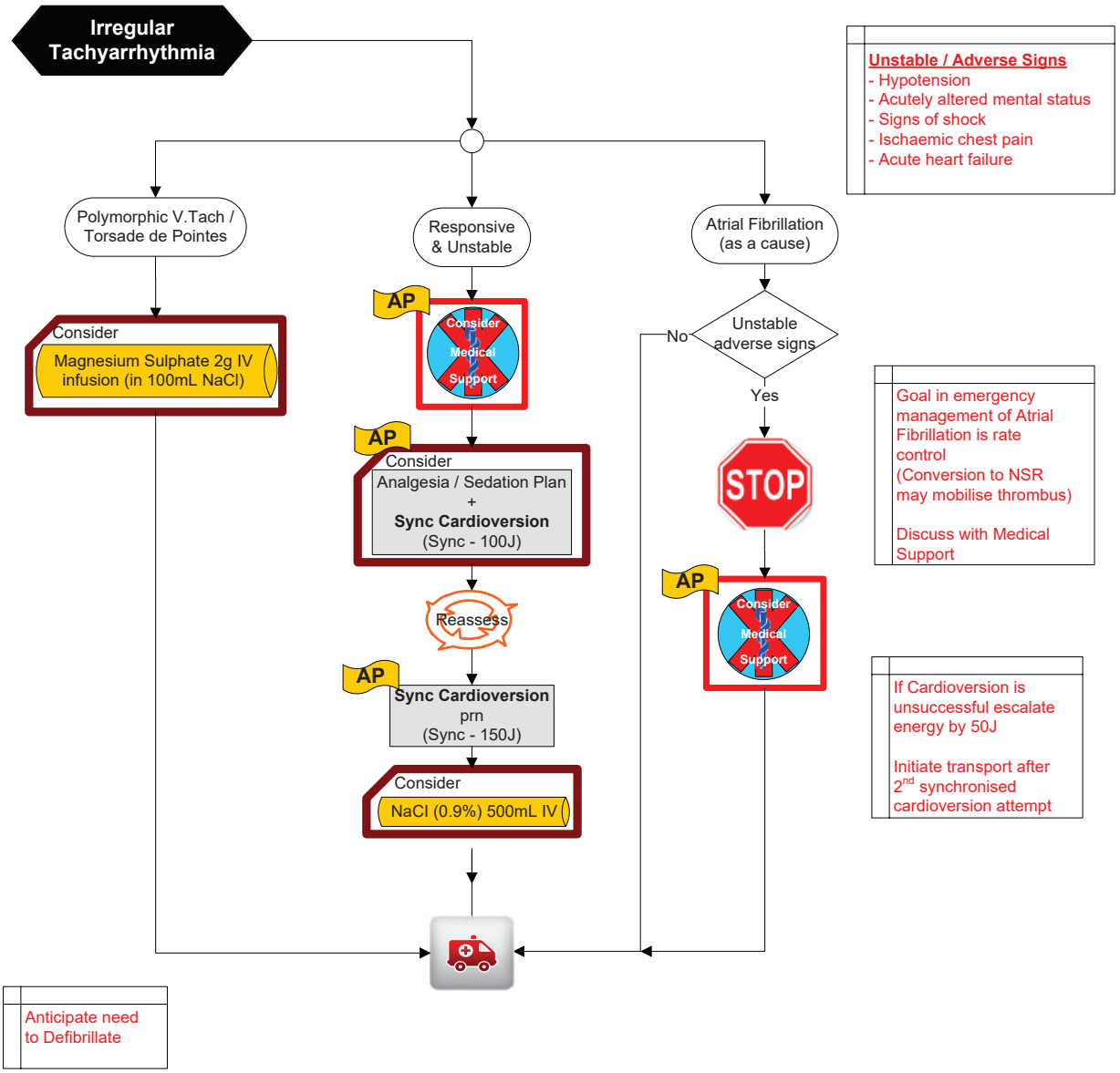
AP



Tachyarrhythmia Irregular Rate - Adult

6.3.6
Version 1, 03/2021

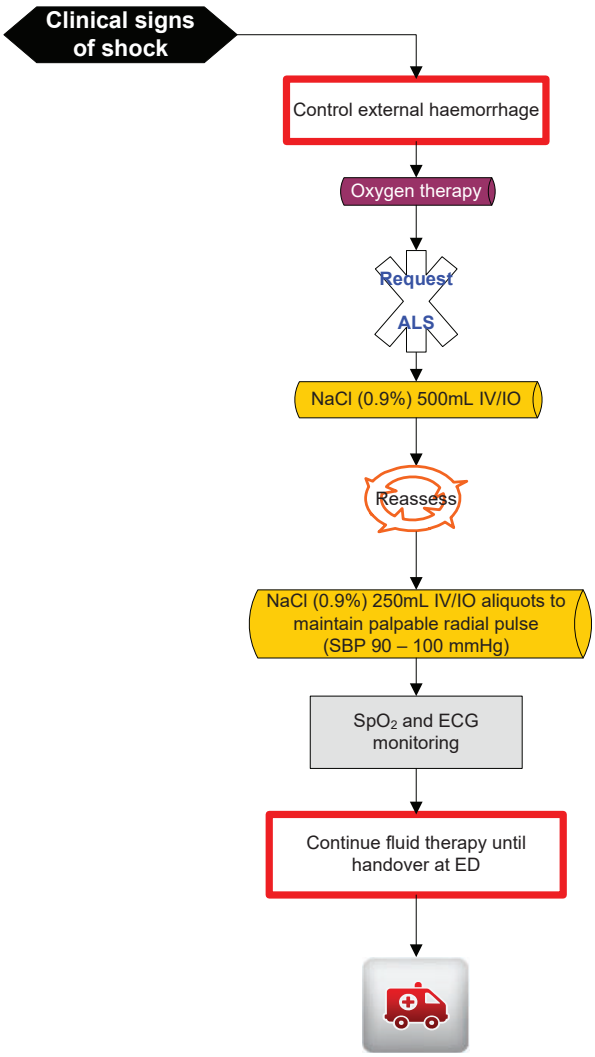
AP



Shock from Blood Loss (non-trauma) – Adult

5/6.4.1
Version 2, 12/2020

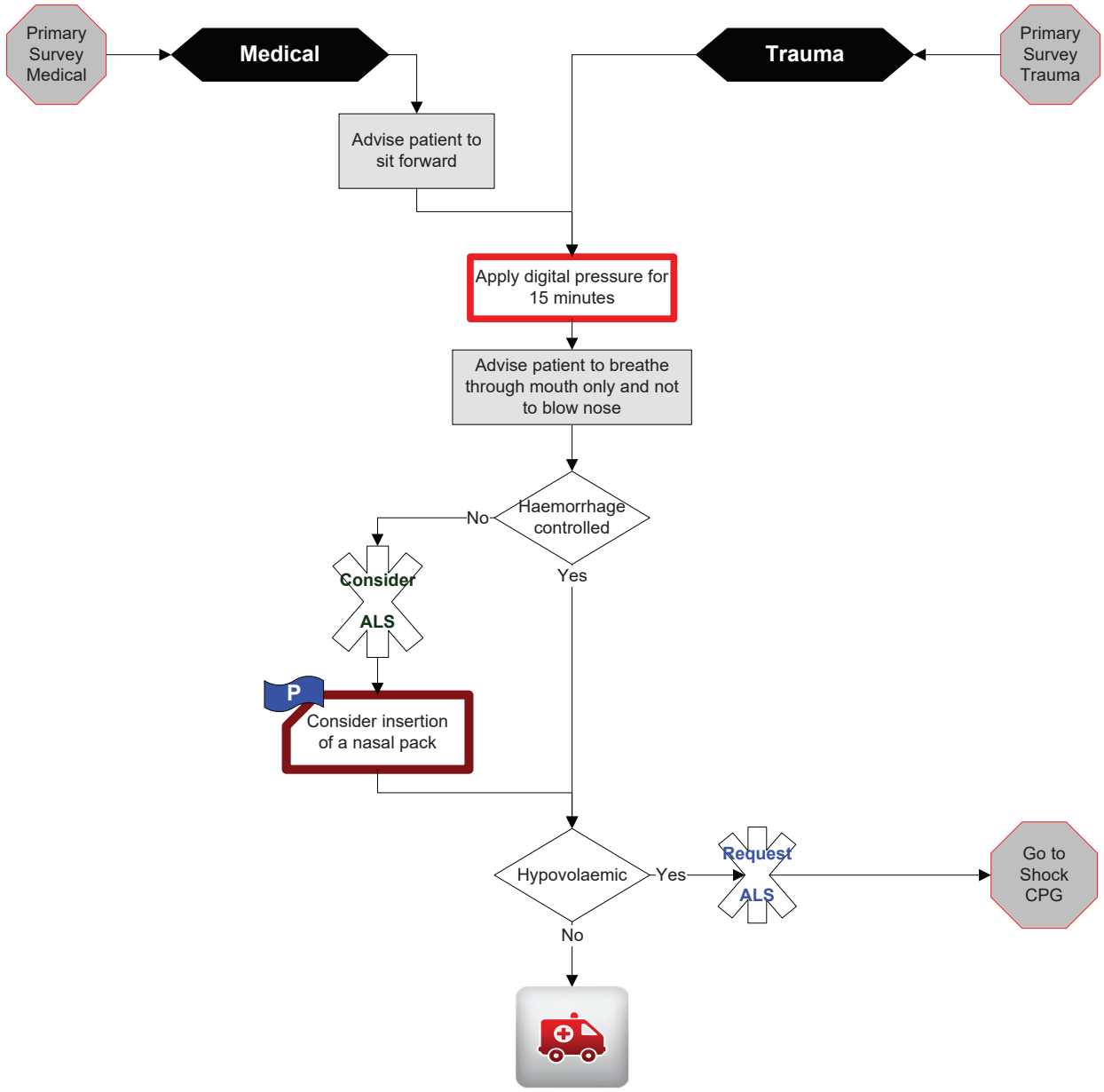
P AP



Epistaxis

4/5/6.4.2
Version 3, 12/2020

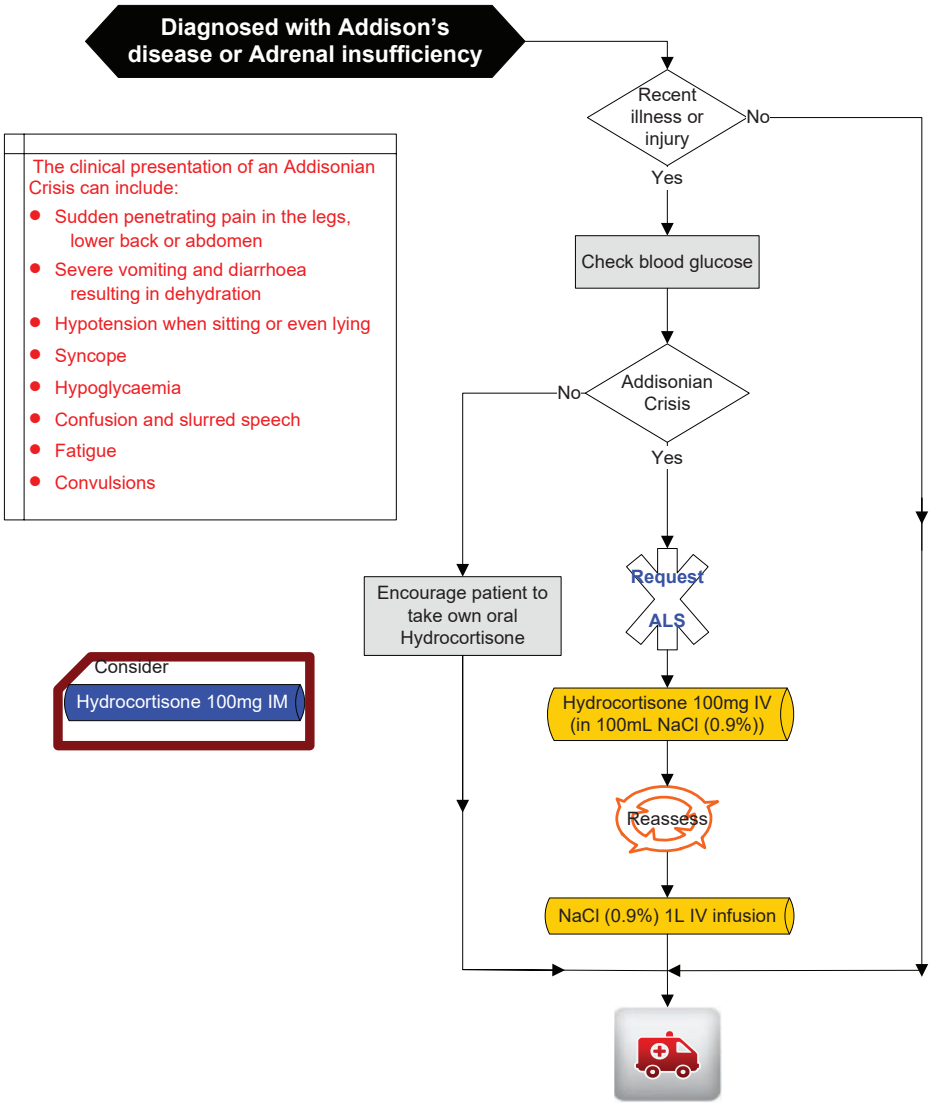
EMT P AP



Adrenal Insufficiency – Adult

5/6.5.1
Version 2, 01/2021

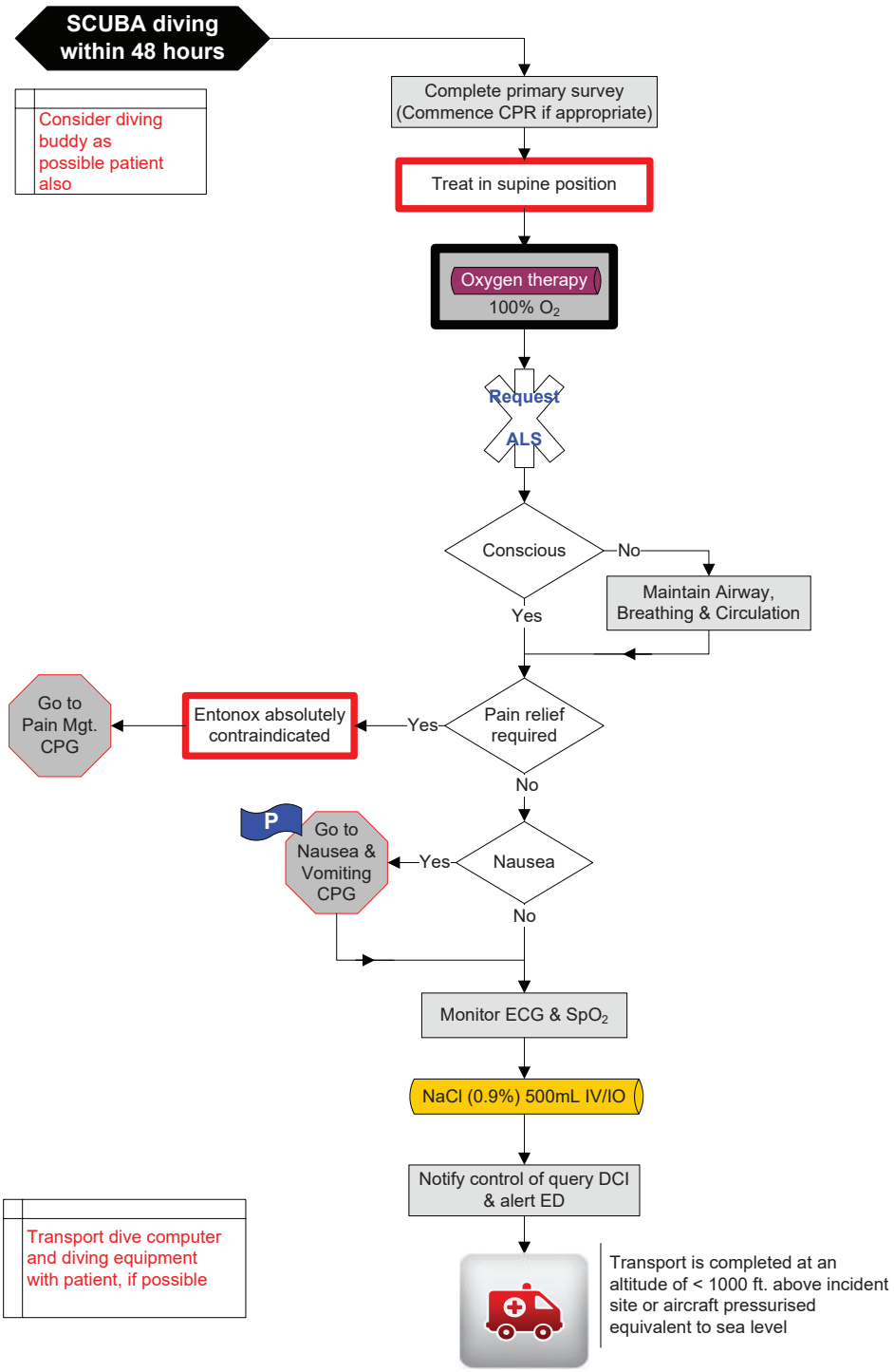
P AP



Decompression Illness (DCI)

4/5/6.5.2
Version 3, 12/2020

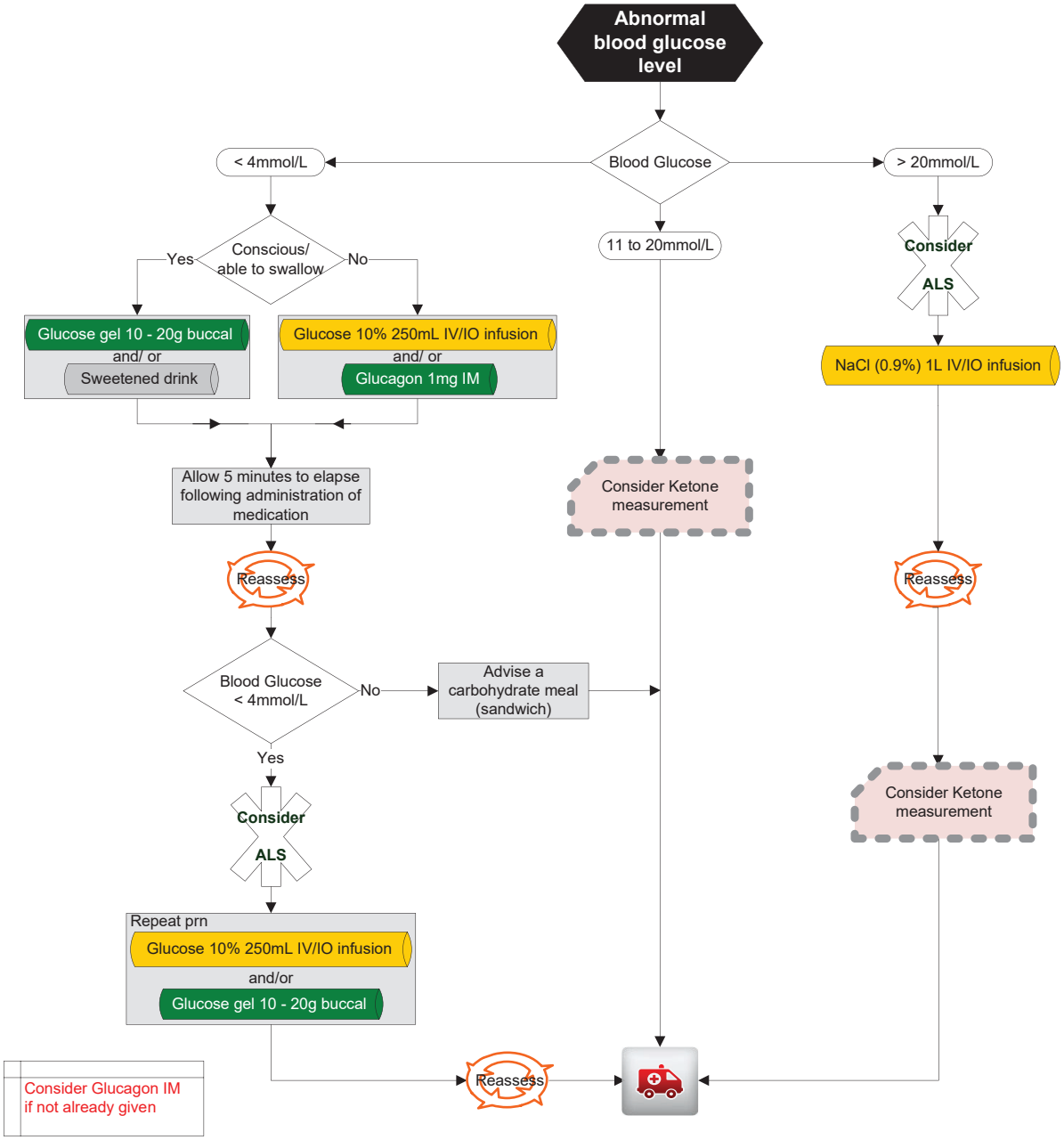
EMT P AP



Glycaemic Emergency – Adult

4/5/6.5.3
Version 5, 11/2022

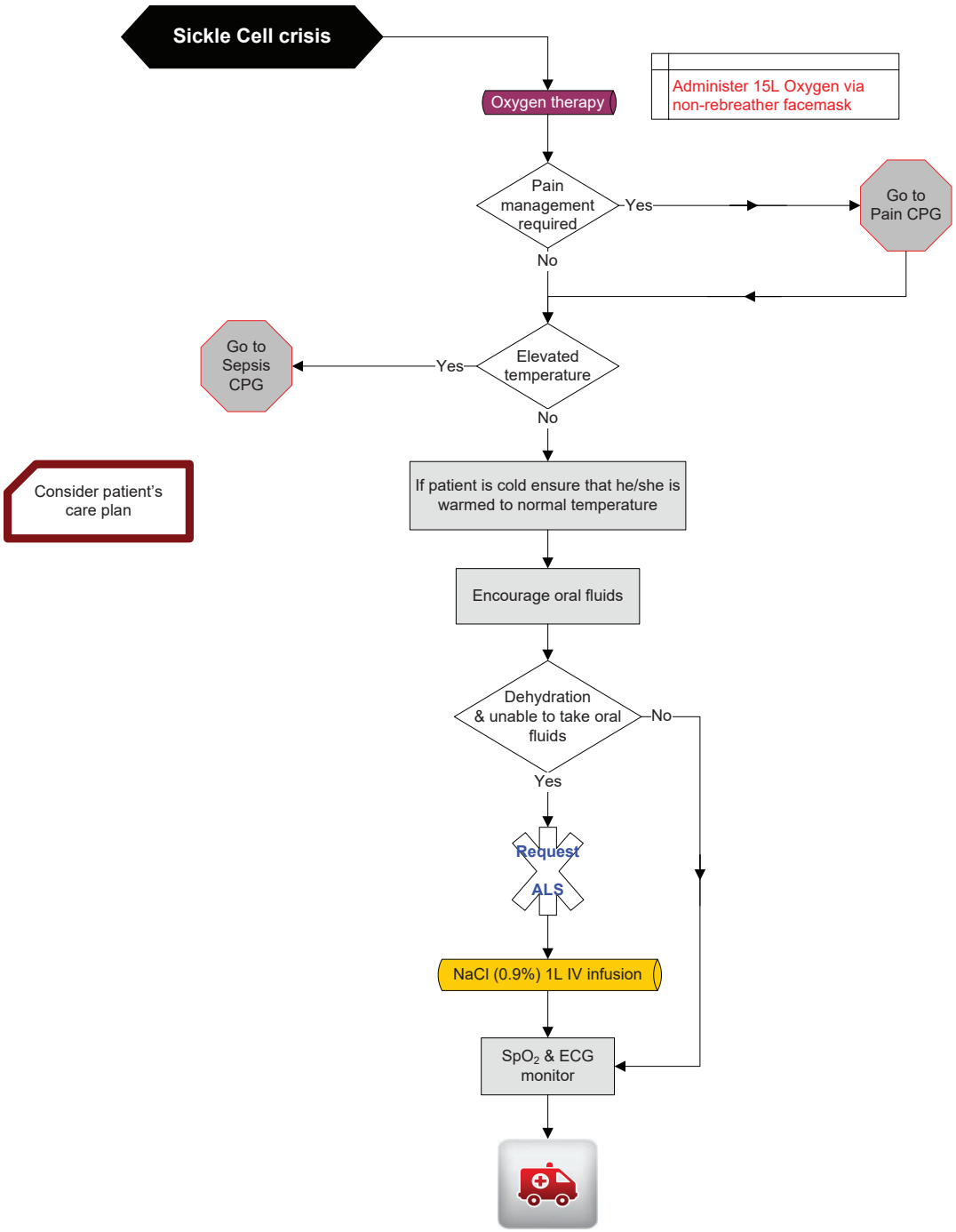
EMT P AP



Sickle Cell Crisis - Adult

4/5/6.5.4
Version 2, 12/2020

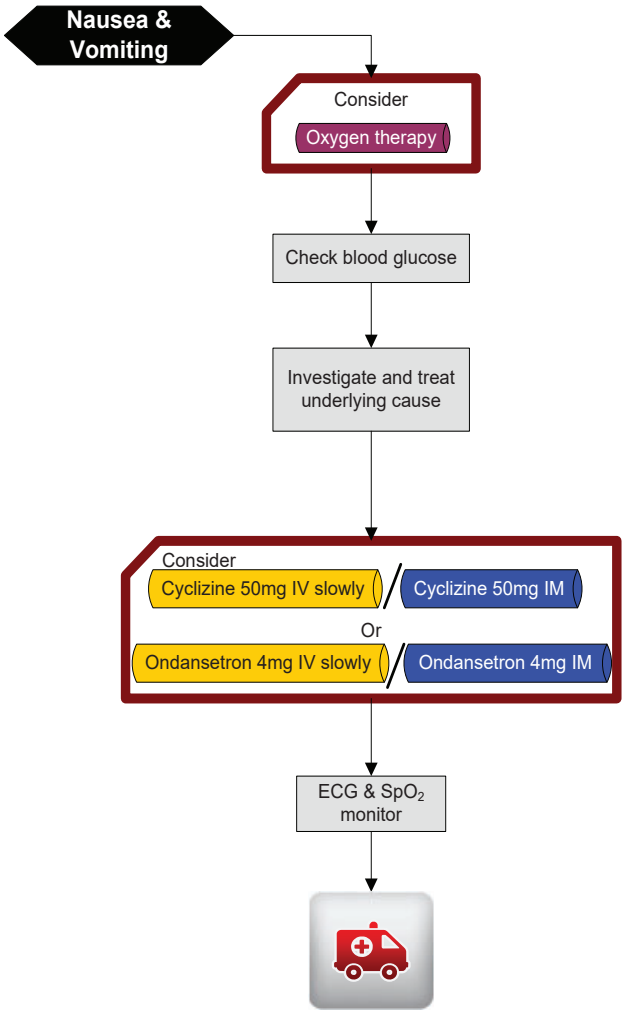
EMT P AP



Significant Nausea & Vomiting – Adult

5/6.5.5
Version 3, 12/2020

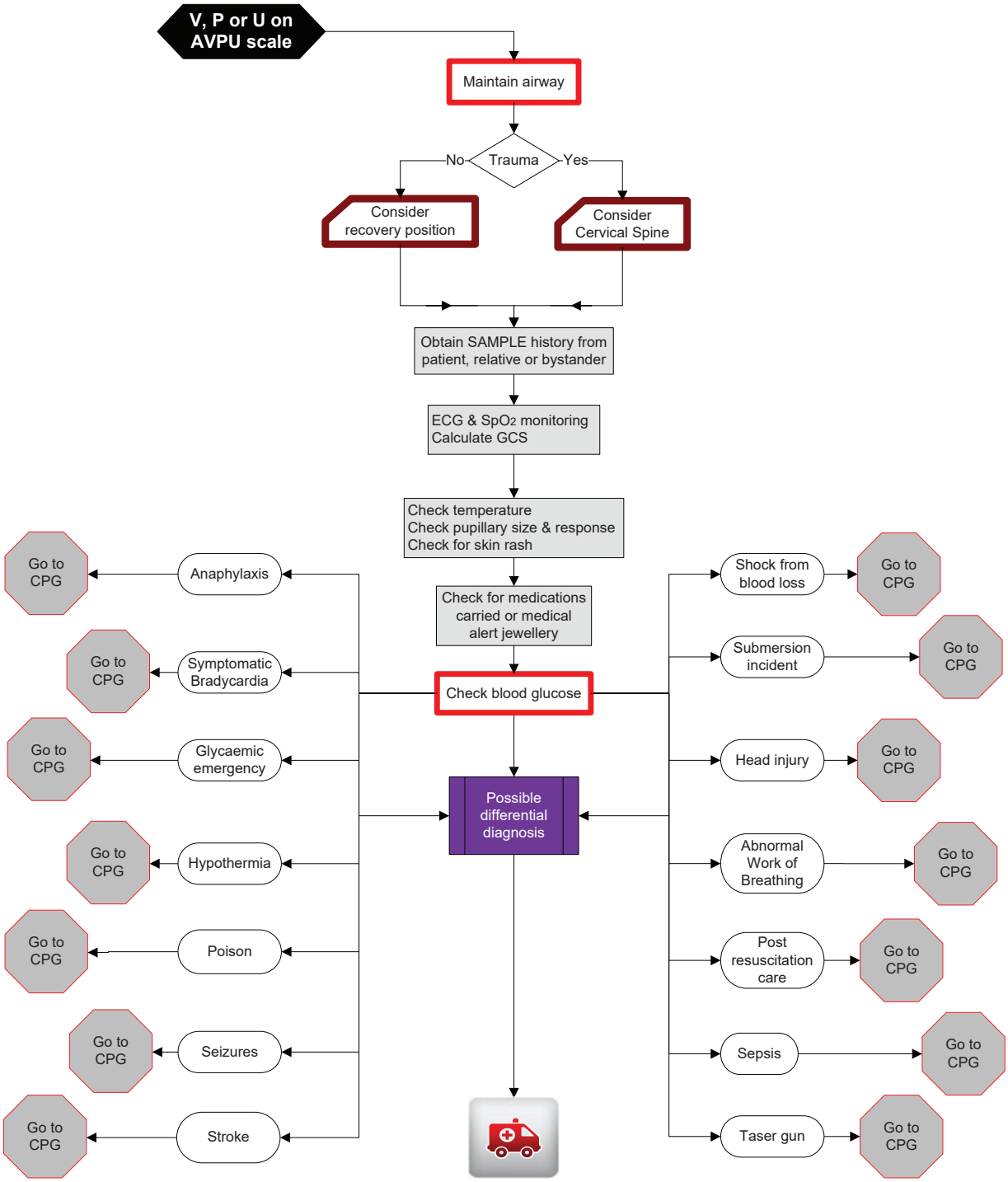
P AP



Altered Level of Consciousness – Adult

5/6.6.1
Version 2, 12/2020

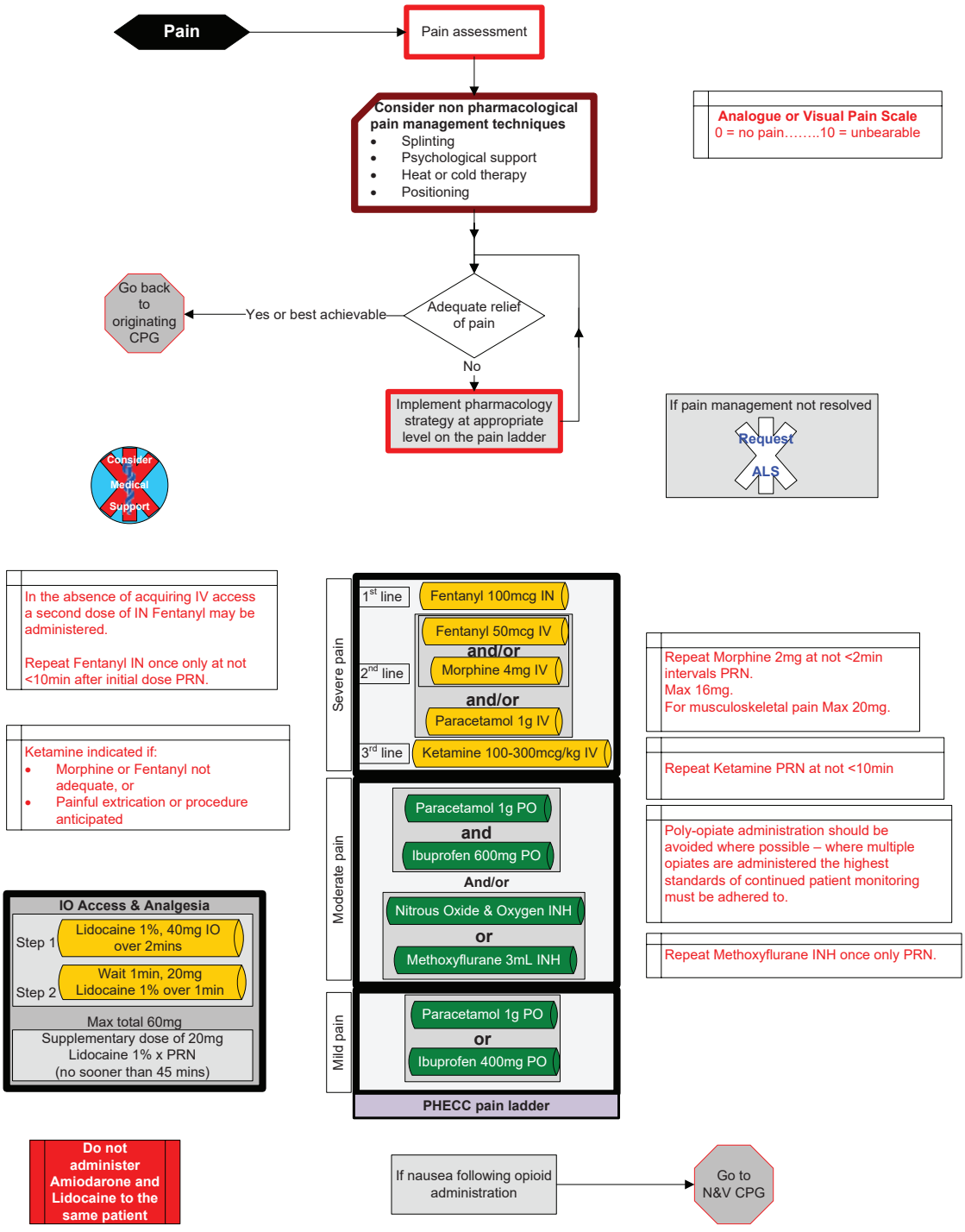
P AP



Pain Management – Adult

4/5/6.6.2
Version 6, 04/2021

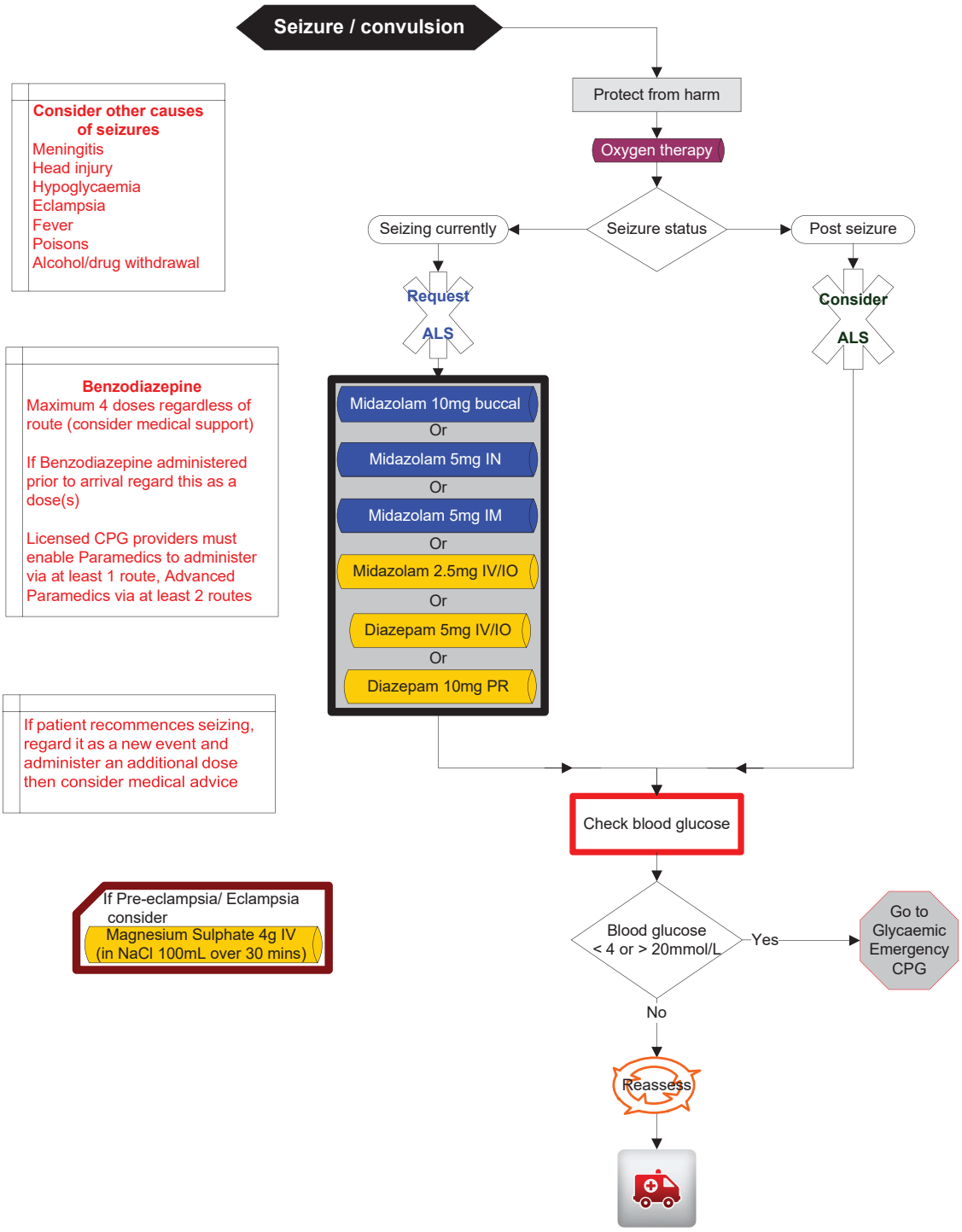
EMT P AP



Seizure/Convulsion – Adult

5/6.6.3
Version 7, 01/2023

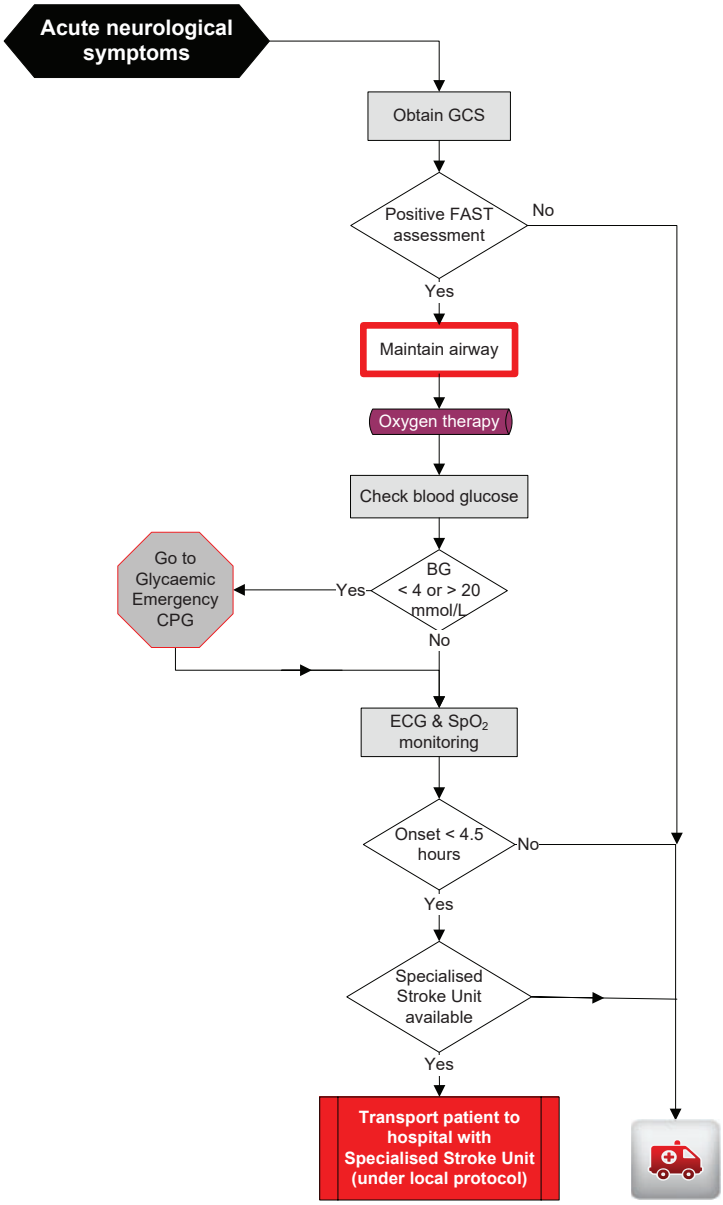
P AP



Stroke

5/6.6.4
Version 4, 12/2020

P AP

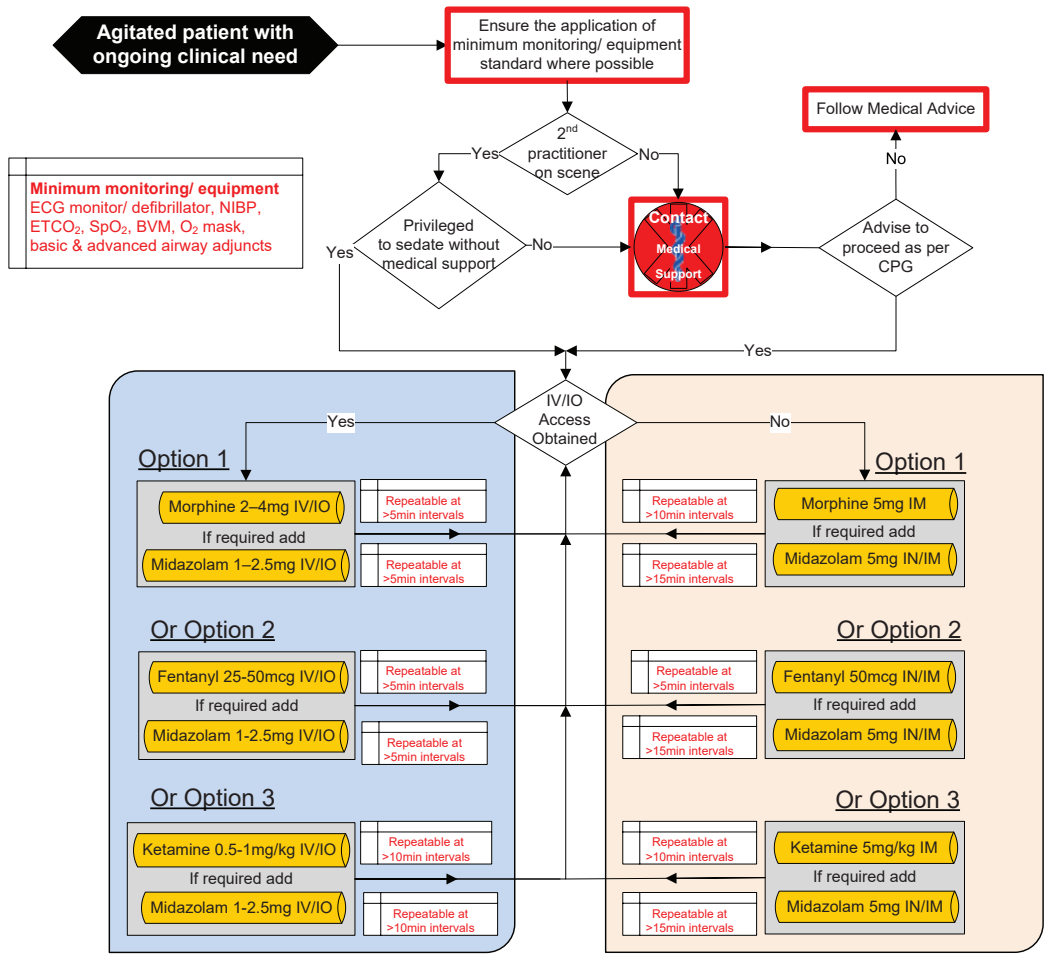


F – facial weakness
Can the patient smile? Has their mouth or eye drooped? Which side?
A – arm weakness
Can the patient raise both arms and maintain for 5 seconds?
S – speech problems
Can the patient speak clearly and understand what you say?
T – time of onset

Procedural Sedation/Analgesia - Adult

6.6.5
Version 1, 03/2021

AP



Option 1: Most suitable for longer journeys in patients with normal to high blood pressures

Option 2: Most suitable for shorter journeys or patients post ROSC with normal to low blood pressures

Option 3: Most suitable for patients being transported by Aeromedical/ Specialist Services

Sedation Assessment Tool

Score	Term	Description
+4	Combative	Overtly combative or violent; immediate danger to staff
+3	Very agitated	Pulls on or removes tube or catheters or has aggressive behaviour towards staff
+2	Agitated	Frequent non purposeful movement
+1	Restless	Anxious or apprehensive but movements not aggressive or vigourous
0	Alert and calm	
-1	Drowsy	Not fully alert, but has sustained (> 10 sec) awakening, with eye contact, to voice
-2	Light sedation	Briefly (<10 sec) awakens with eye contact to voice
-3	Moderate sedation	Any movement (but no eye contact) to voice
-4	Deep sedation	No response to voice, but any movement to physical stimulation
-5	Unarousable	No response to voice or physical stimulation

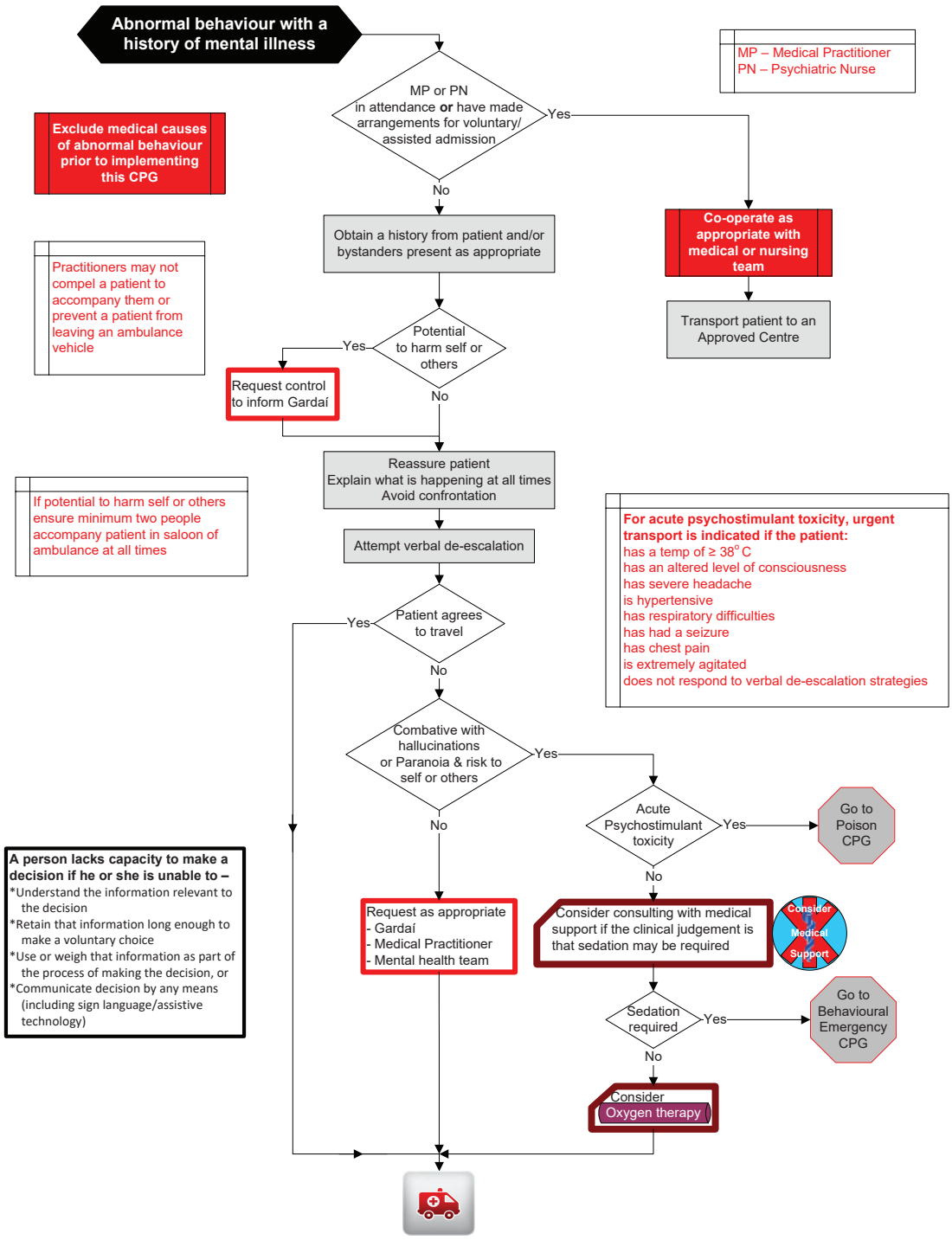
The Richmond Agitation-Sedation Scale (RASS)

SECTION 7 - Behavioural and Mental Health Emergencies

Mental Health Emergency

6.7.1
Version 3, 03/2021

AP

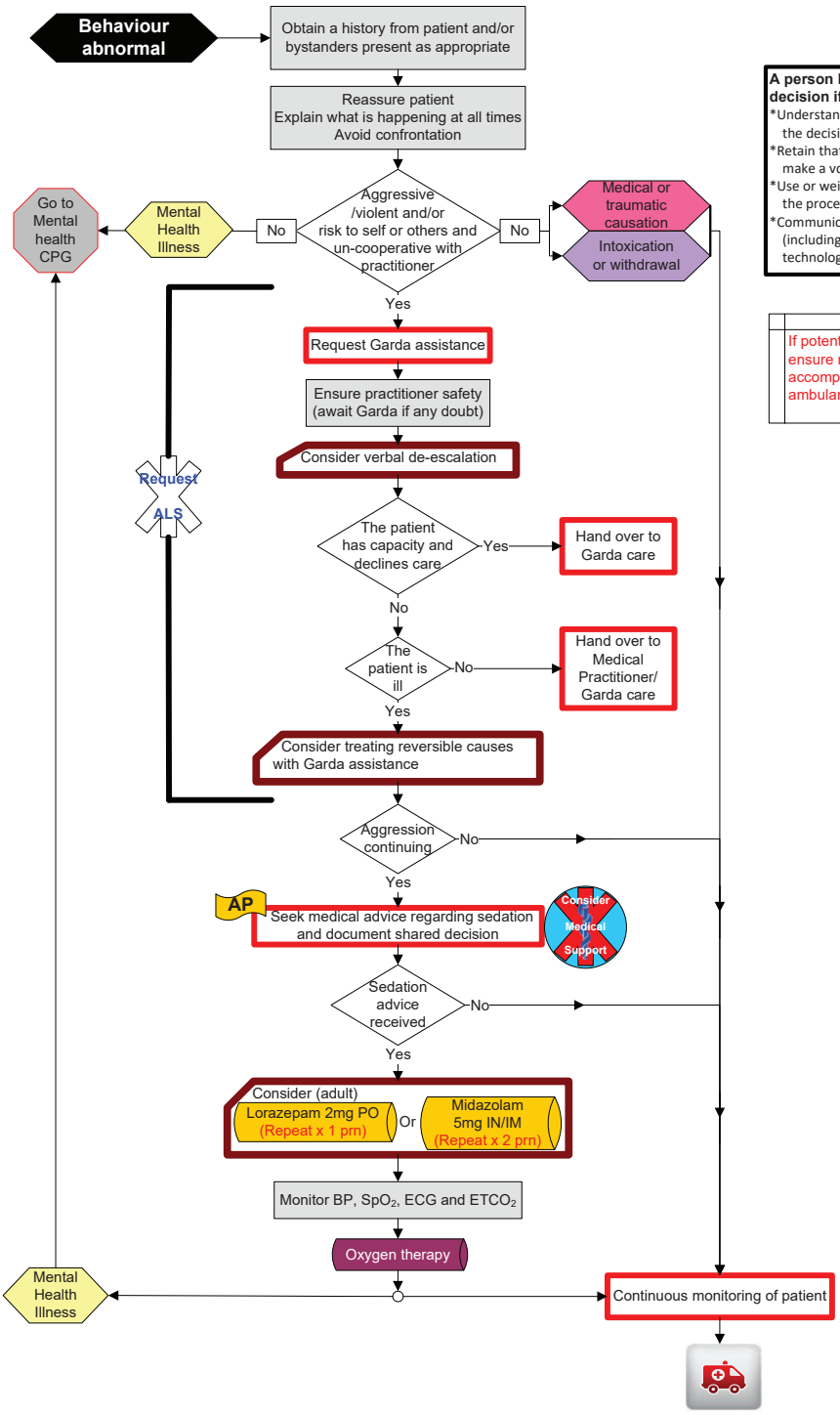


Pre-Hospital Emergency Care Council

Behavioural Emergency

4/5/6.7.2
Version 3, 03/2021

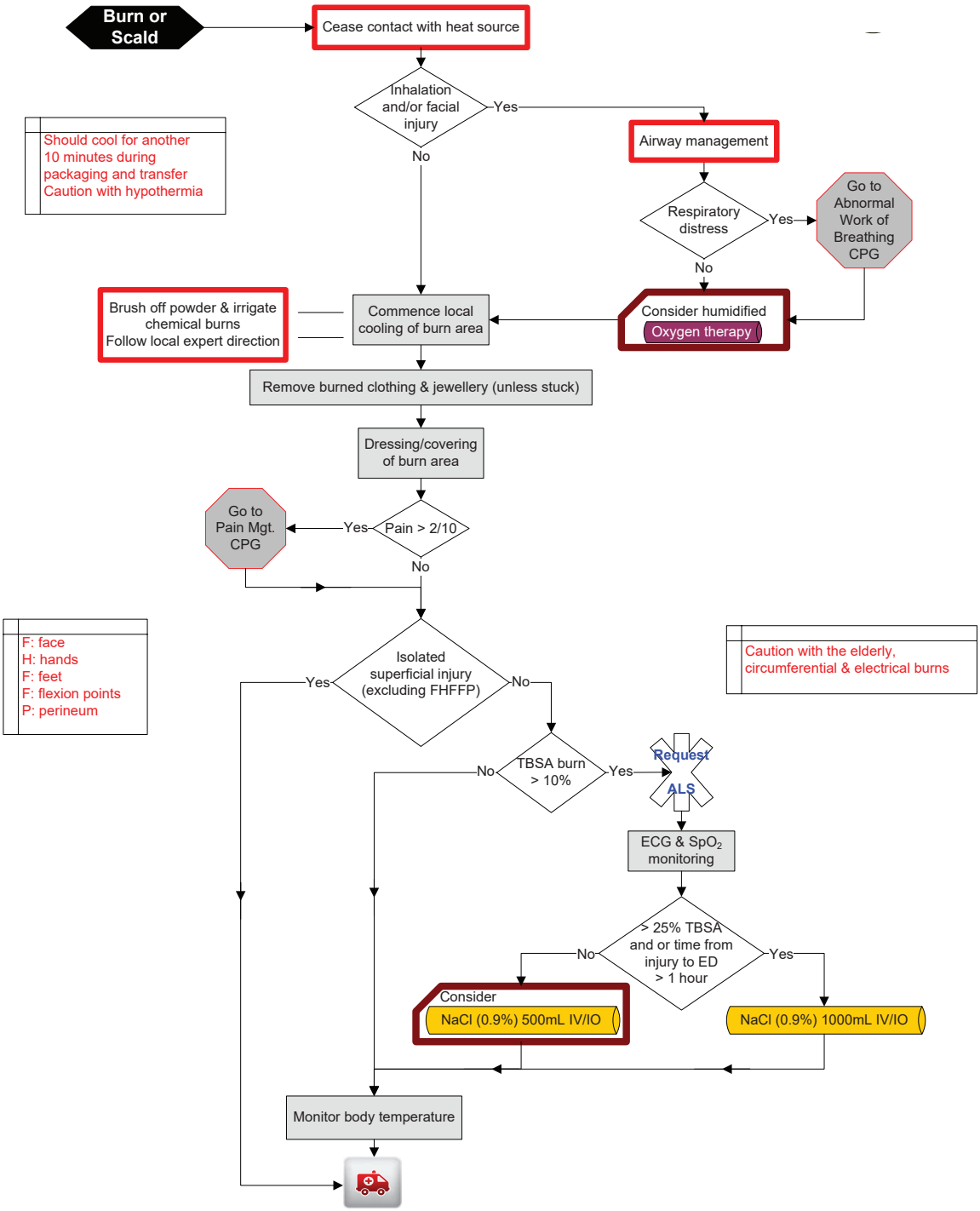
EMT P AP



Burns – Adult

4/5/6.8.1
Version 3, 01/2021

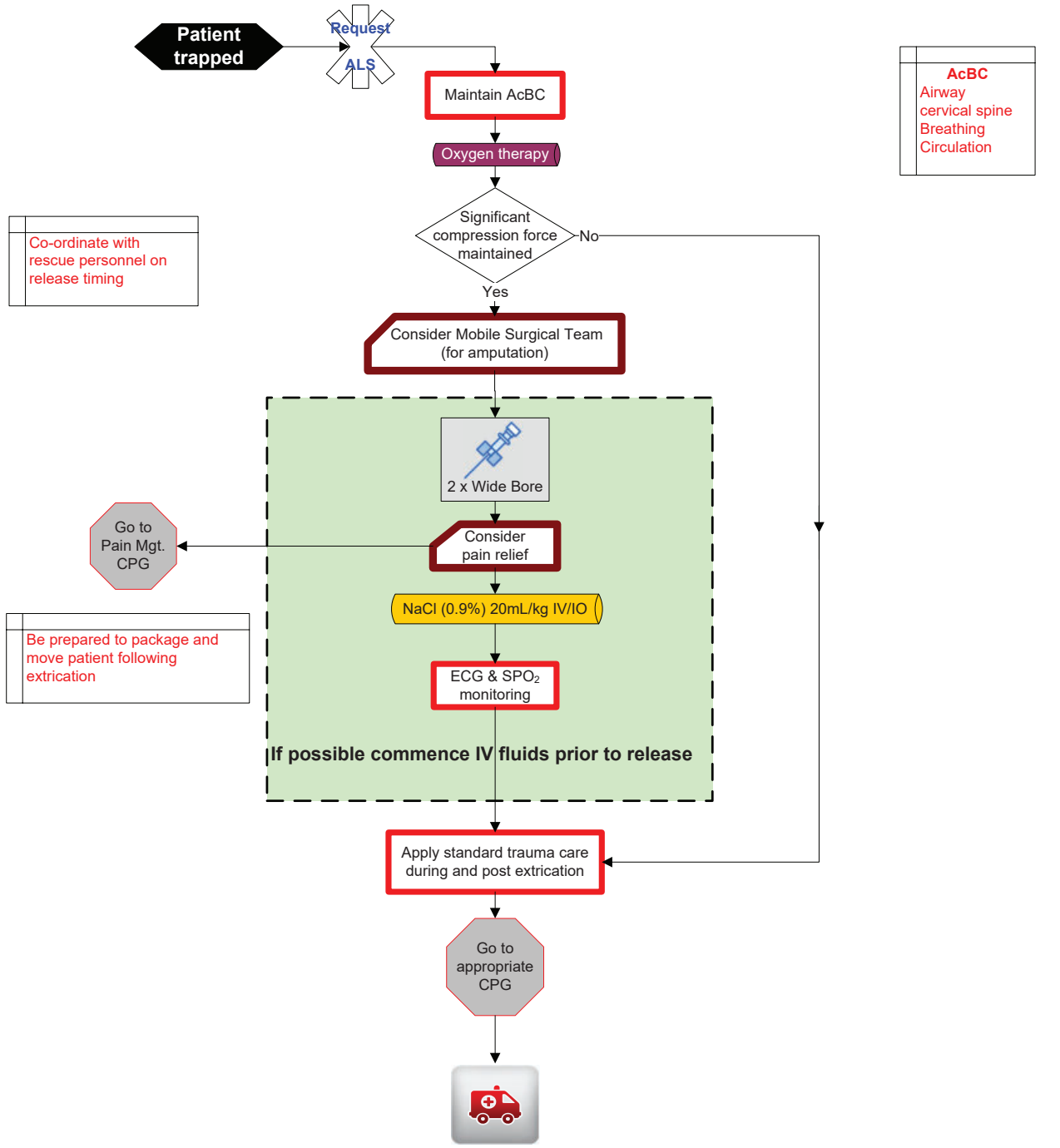
EMT P AP



Crush Injury

5/6.8.2
Version 2, 03/2021

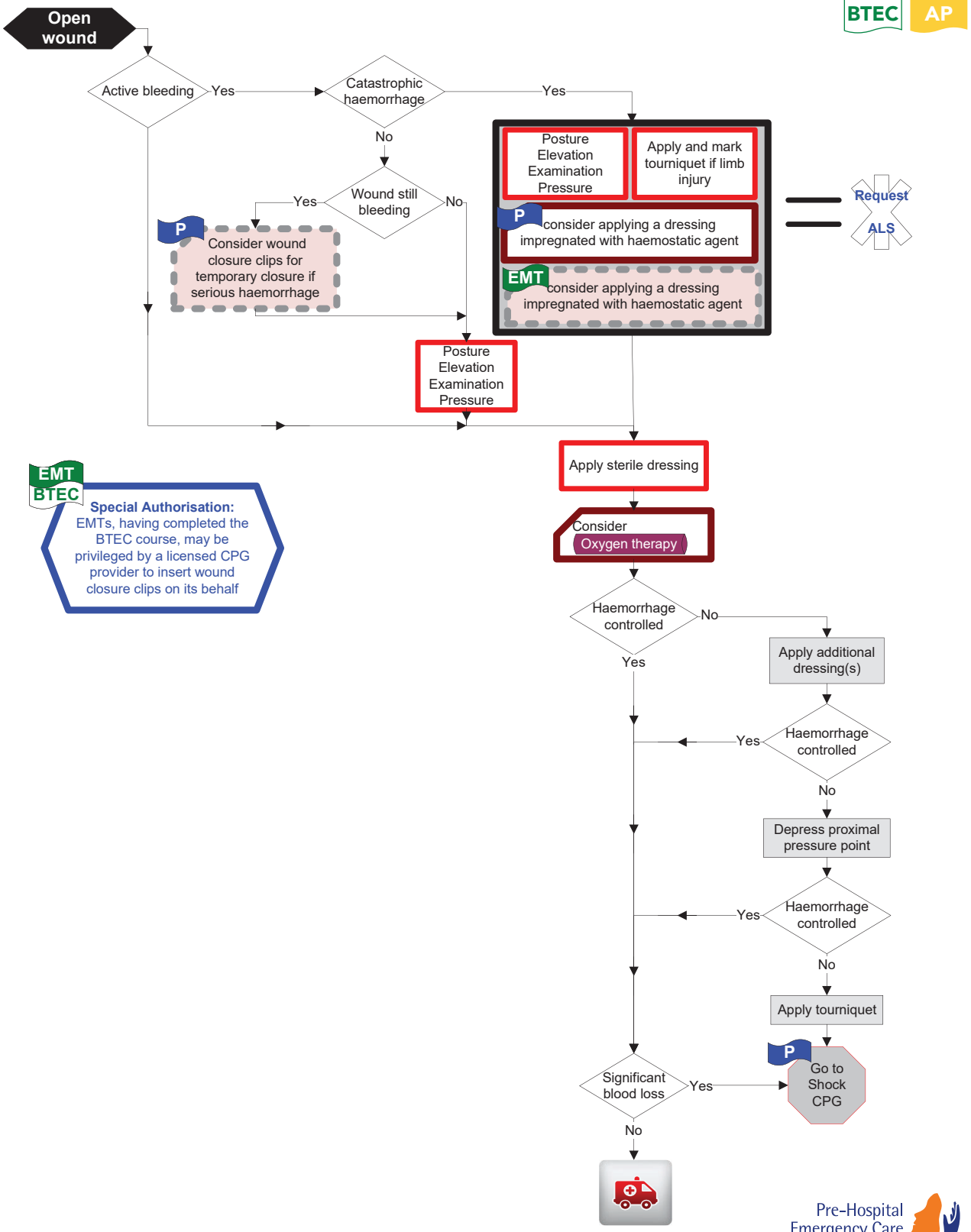
P AP



External Haemorrhage – Adult

4/5/6.8.3
Version 5, 02/2021

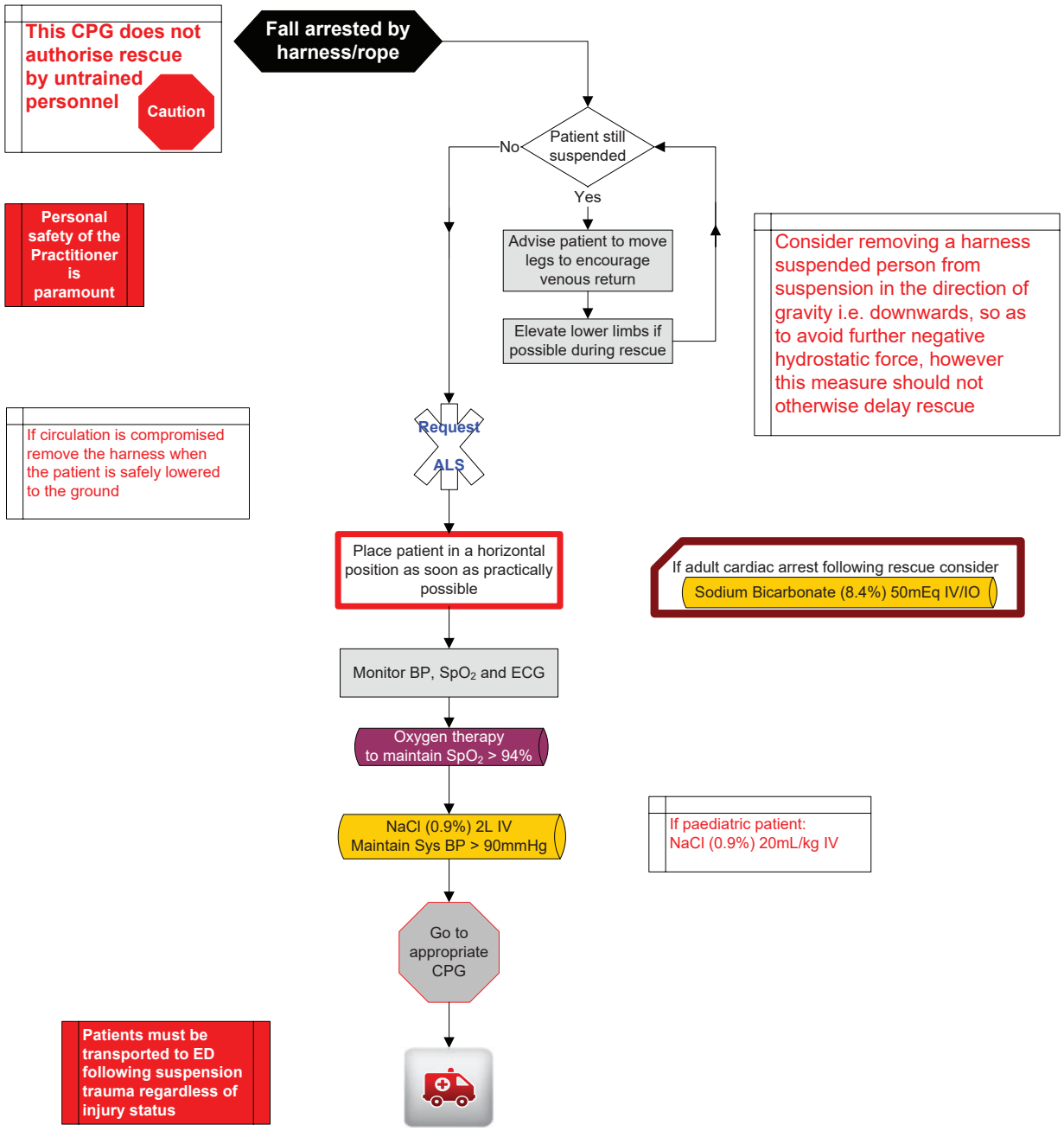
EMT P BTEC AP



Harness Induced Suspension Trauma

4/5/6.8.4
Version 4, 01/2021

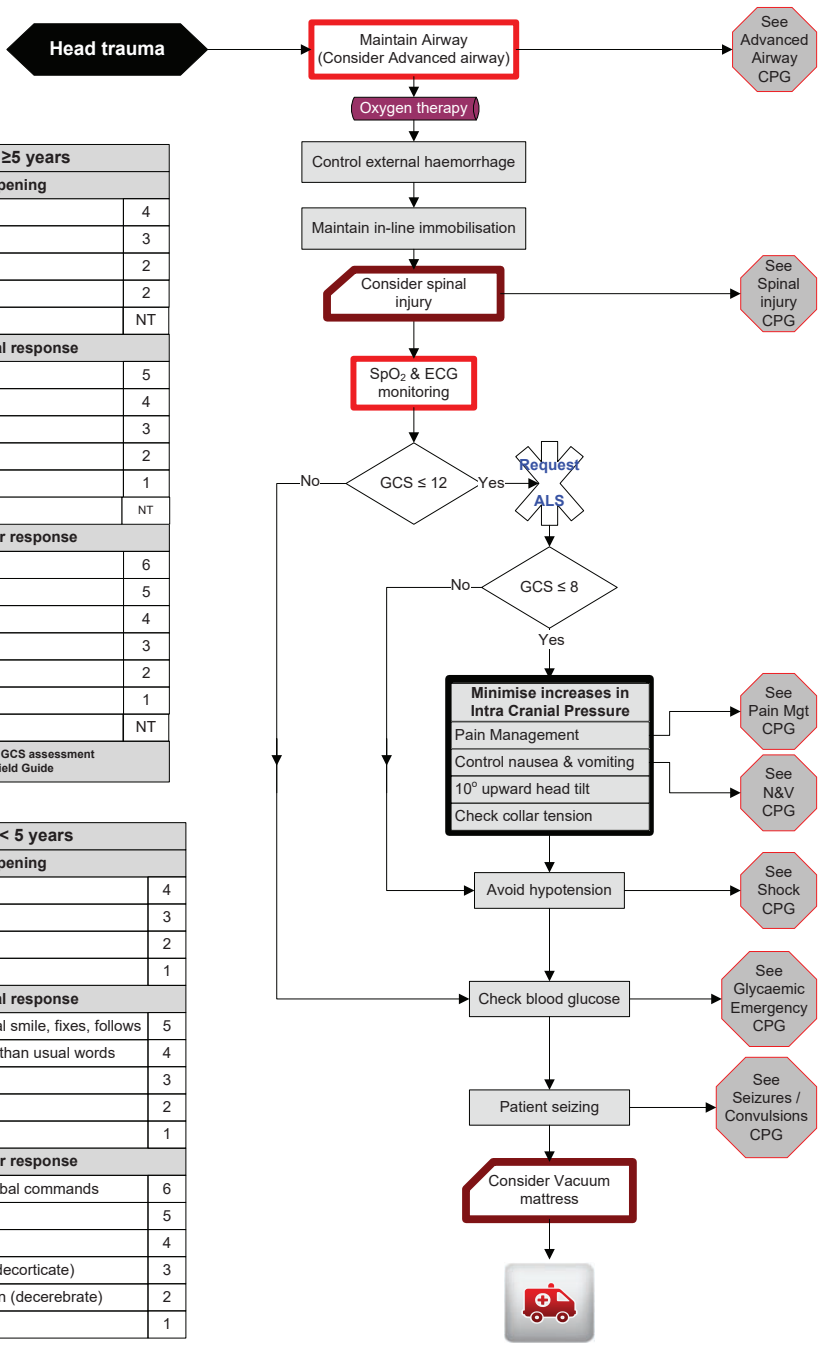
EMT P AP



Head Injury

5/6.8.5
Version 4, 12/2020

P AP



GCS for ≥5 years	
Eye opening	
Spontaneous	4
To sound	3
To pressure	2
None	2
Non testable	NT
Best verbal response	
Orientated	5
Confused	4
Words	3
Sounds	2
None	1
Non testable	NT
Best motor response	
Obeys commands	6
Localising	5
Normal flexion	4
Abnormal flexion	3
Extension	2
None	1
Non testable	NT
For guidance on GCS assessment refer to Field Guide	

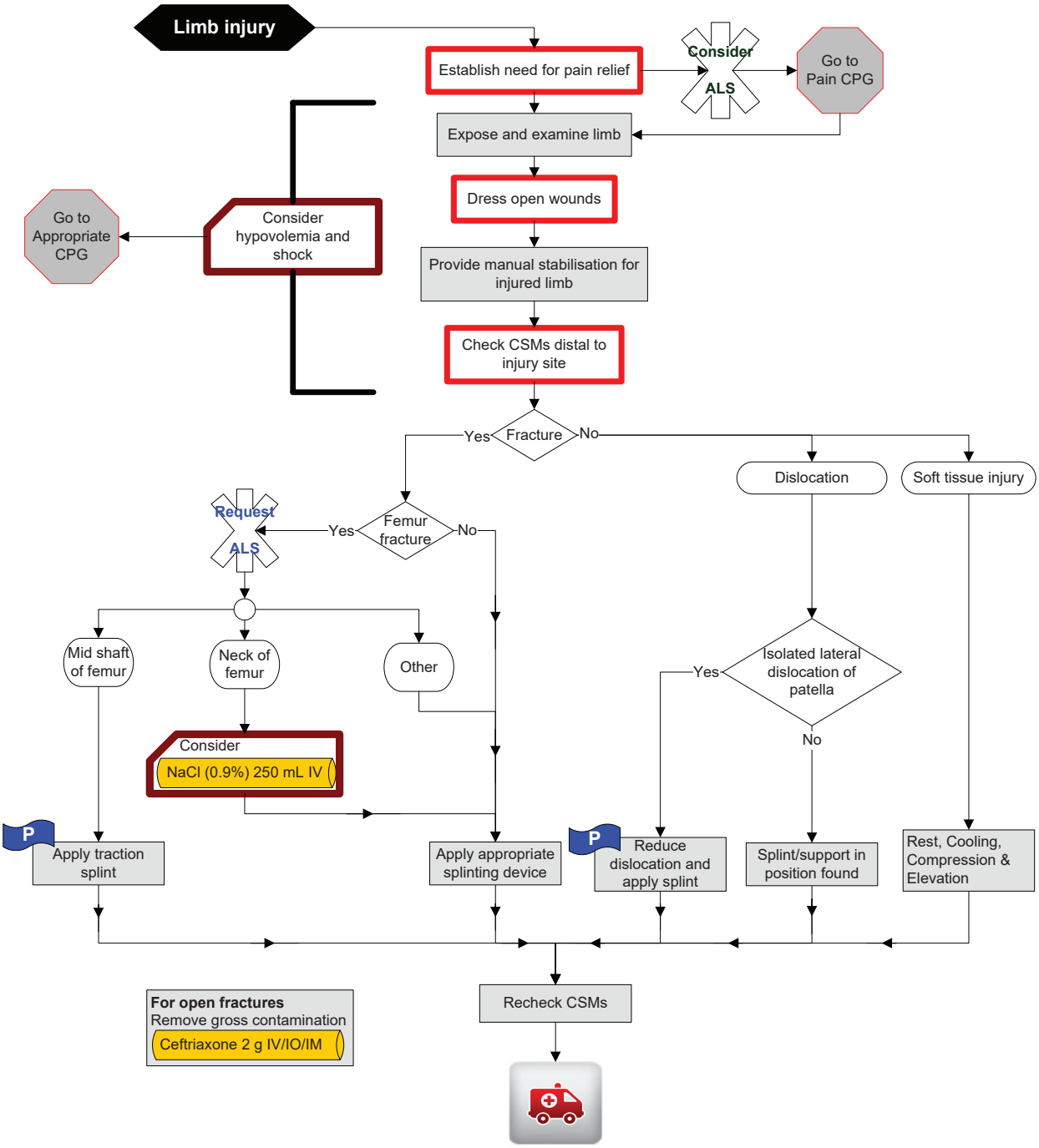
GCS for < 5 years	
Eye opening	
Spontaneously	4
To verbal stimuli	3
To painful stimuli	2
No response to pain	1
Best verbal response	
Appropriate words or social smile, fixes, follows	5
Cries but consolable; less than usual words	4
Persistently irritable	3
Moans to pain	2
No response to pain	1
Best motor response	
Spontaneous or obeys verbal commands	6
Localises to stimuli	5
Withdraws to stimuli	4
Abnormal flexion to pain (decorticate)	3
Abnormal extension to pain (decerebrate)	2
No response to pain	1

With head injury maintain SBP:
with GCS ≤ 8 at 120 mmHg
with GCS > 8 at 90 – 100 mmHg

Limb Injury – Adult

4/5/6.8.6
Version 6, 03/2021

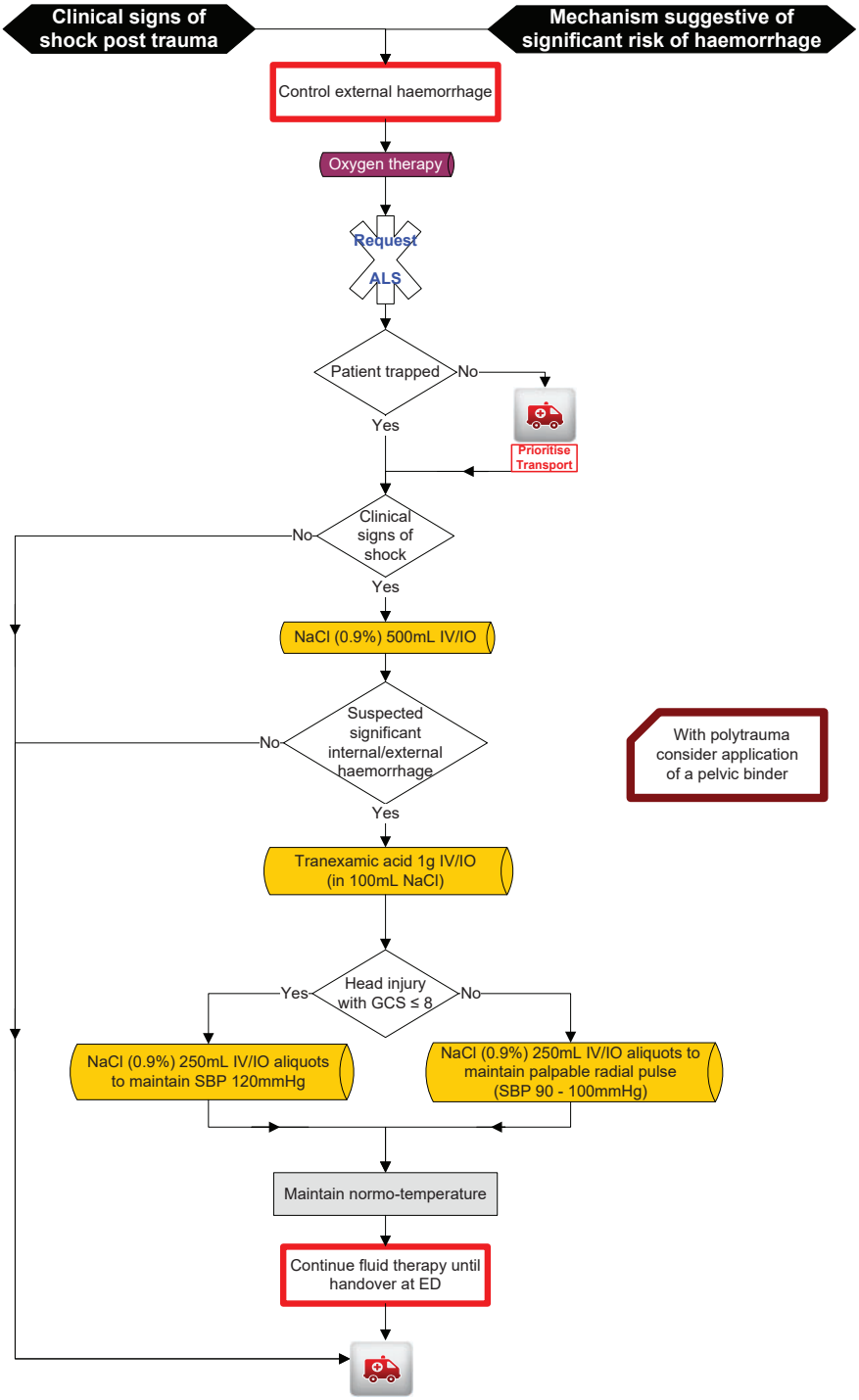
EMT P AP



Actual/Potential Shock from Blood Loss (trauma) – Adult

5/6.8.7
Version 5, 01/2021

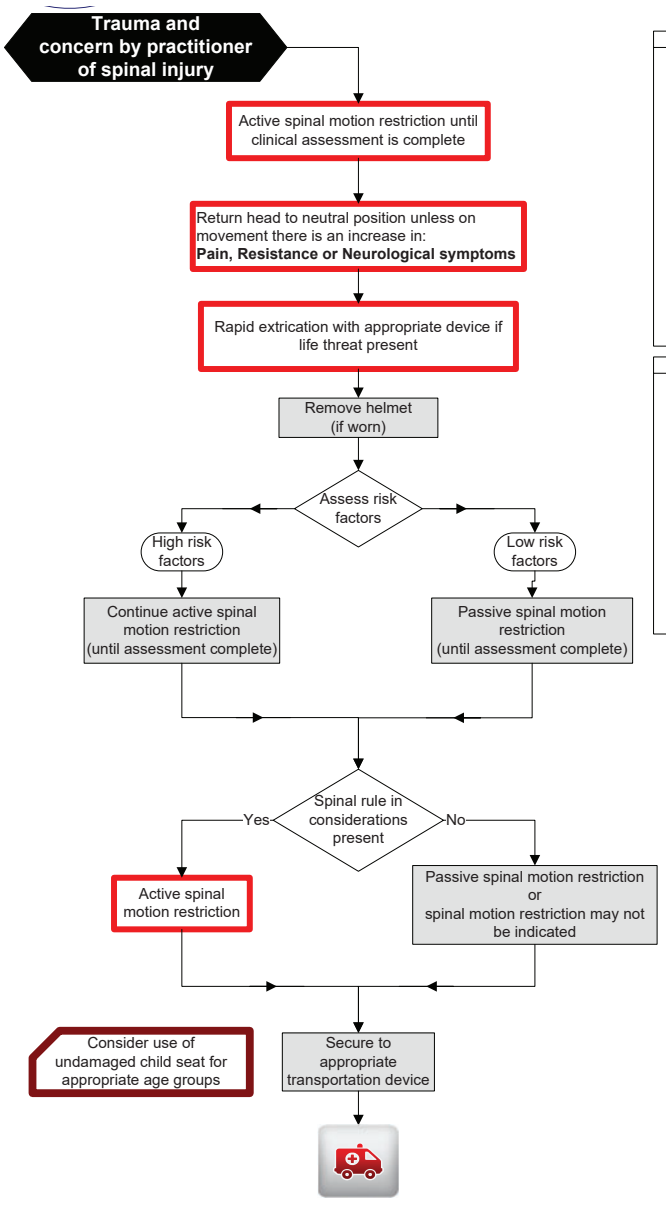
P AP



Spinal Injury Management

5/6.8.8
Version 5, 01/2021

P AP



High risk factors:- any of the following:
- dangerous mechanism of injury
- fall from a height of greater than 1 metre or 5 steps
- axial load to the head or base of the spine

– for example;
diving, high-speed motor vehicle collision, rollover motor accident, ejection from a motor vehicle, accident involving motorised recreational vehicle, bicycle collision, horse riding accident, pedestrian v vehicle.

- impaired awareness (alcohol/ drug intoxication, confused /uncooperative or ALoC)
- age 65 years or older
- age 2 years or younger incapable of verbal communication

Spinal injury rule in considerations:
- any significant distracting injuries
- impaired awareness (alcohol/ drug intoxication, confused /uncooperative or ALoC)
- immediate onset of spinal/ midline back pain
- hand or foot weakness (motor issue)
- altered or absent sensation in the hands or feet (sensory issue)
- priapism
- history of past spinal problems, including previous spinal surgery or conditions that predispose to instability of the spine.
- Unable to actively rotate their neck 45 degrees to the left and right.

PHECC Spinal Injury Management Standard

Active spinal motion restriction:
using inline techniques with or without spinal injury management devices to reduce spinal column motion.

Passive spinal motion restriction:
requesting the patient to minimise his/her movement without external intervention and permitting the patient to adopt a position of comfort.

Unlikely to have a clinically significant spinal injury

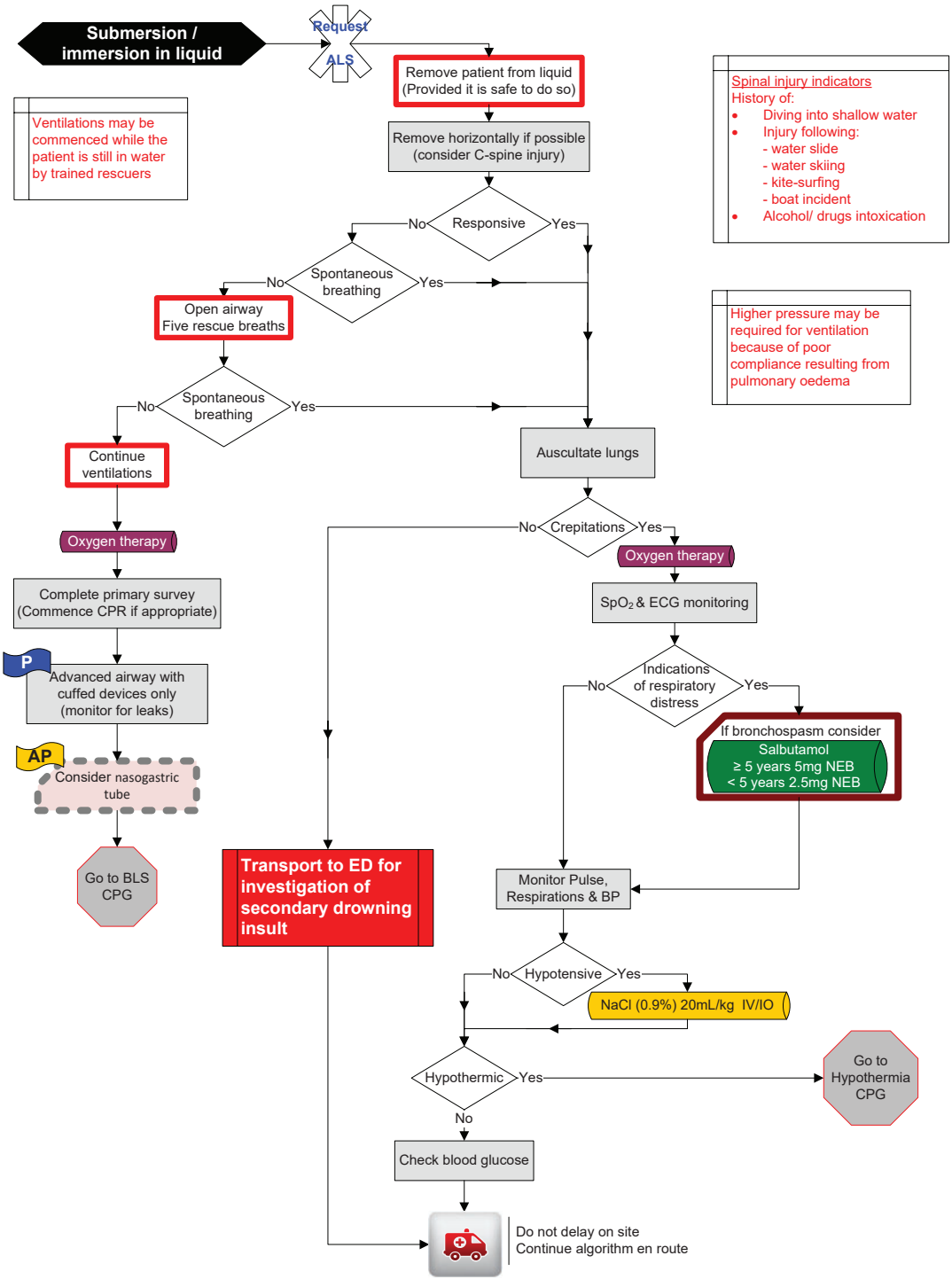
Low risk factors:- any two or more of:
- involved in a minor rear-end motor vehicle collision
- comfortable in a sitting position
- ambulatory at any time since the injury
- no midline cervical spine tenderness
- no spinal column/ midline pain

And are able to actively rotate their neck 45 degrees to the left and right

Submersion/ Immersion Incident

4/5/6.8.9
Version 3, 03/2021

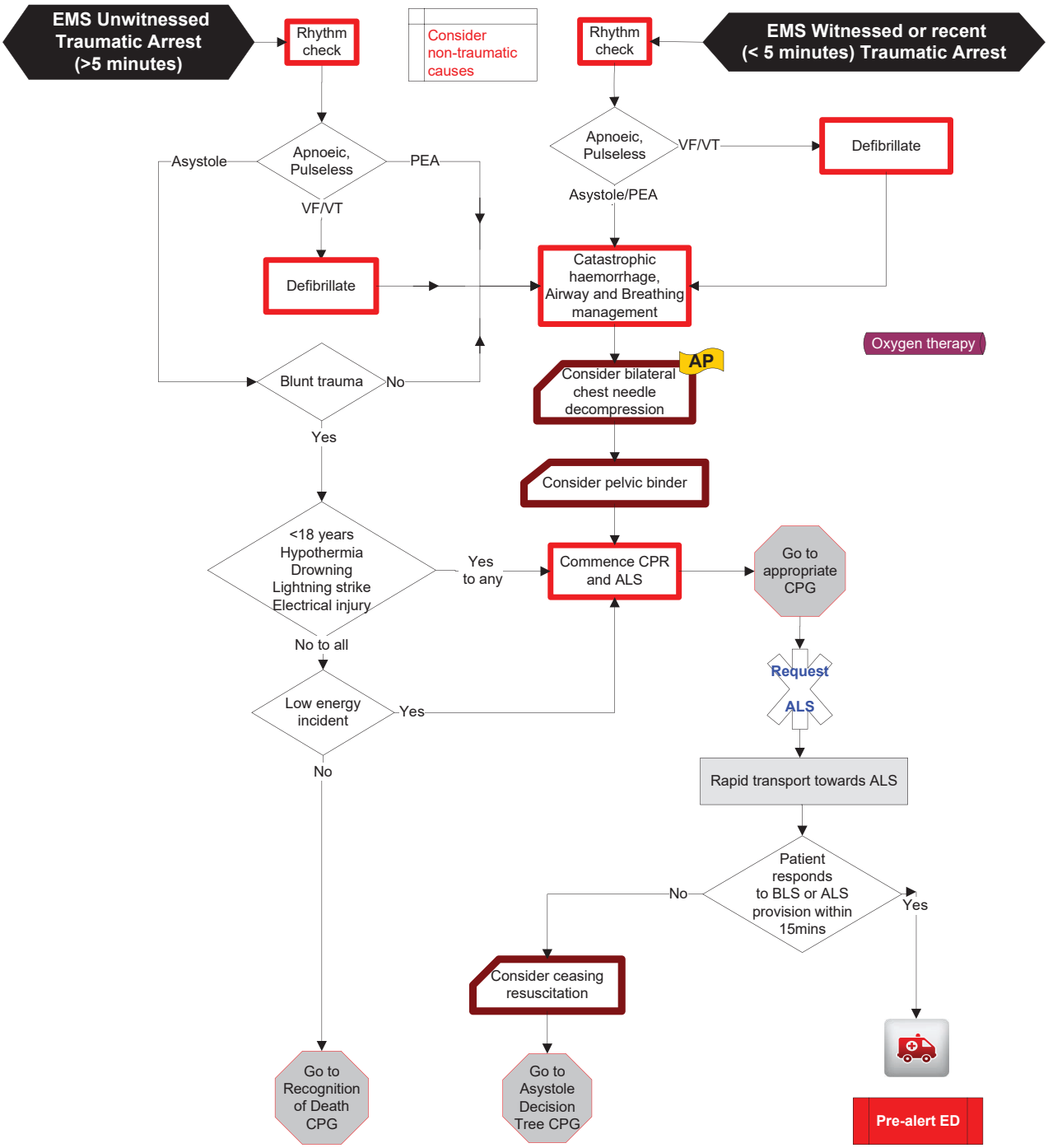
EMT P AP



Traumatic Cardiac Arrest – Adult

5/6.8.10
Version 3, 12/2021

P AP

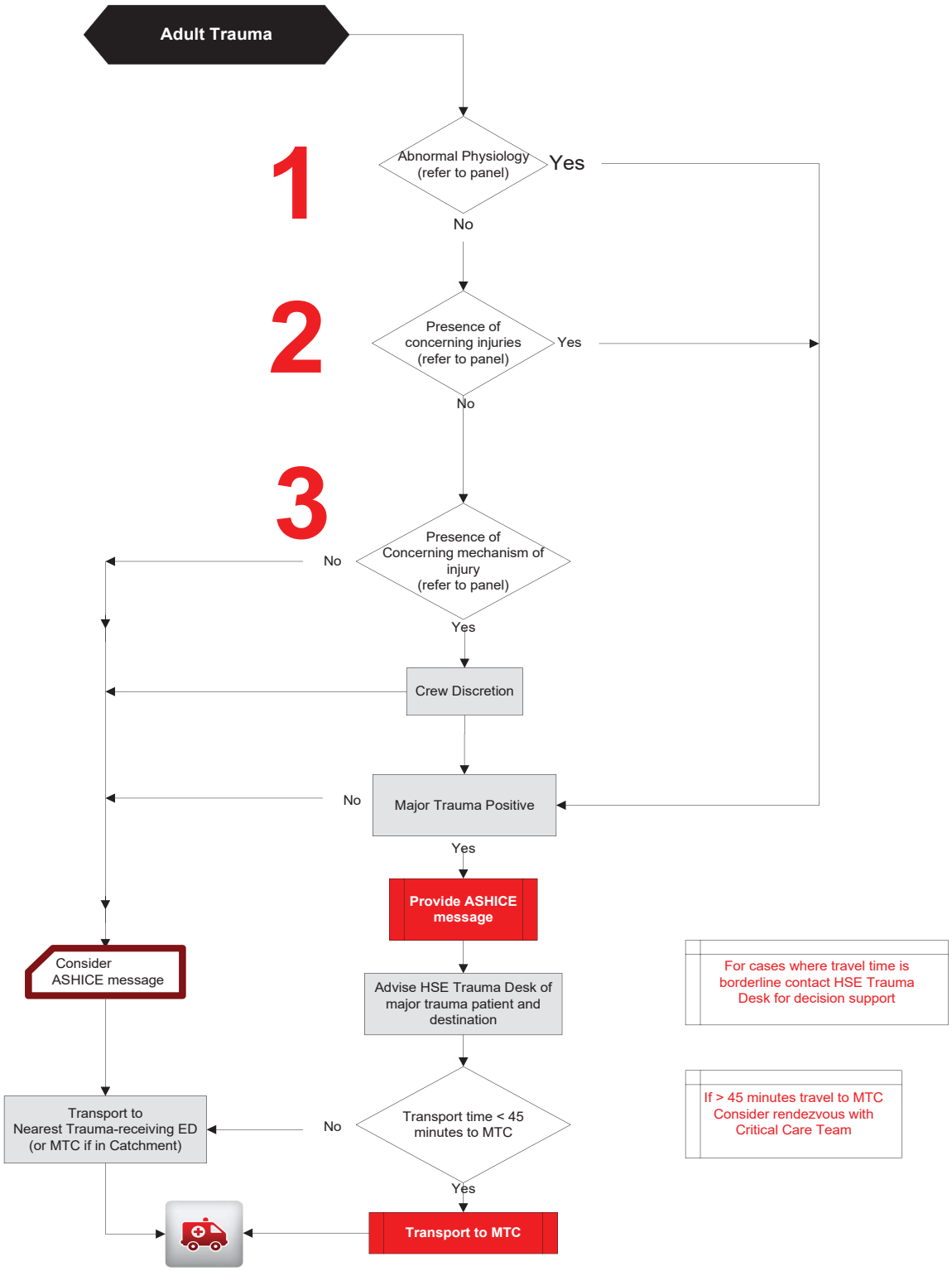


'It may be reasonable to consider immediately prioritising meaningful interventions for witnessed traumatic arrest over standard BLS/ALS, such as treatment of: tension pneumothorax, life-threatening haemorrhage, IV volume replacement, inclusion of pelvic binder or long bone gross fracture realignment.' *The Royal College of Emergency Medicine*

Trauma Triage Tool

4/5/6.8.11
Version 1, 02/2023

EMT P AP



Trauma Triage Tool

4/5/6.8.11
Version 1, 02/2023

EMT P AP

1

Abnormal Physiology Parameters	
SpO_2:	< 90% on air
Respiratory Rate:	< 10 or > 29
Heart Rate:	> 120 BPM after adequate analgesia
Systolic Blood Pressure:	< 90 mmHg at any stage
Glasgow Coma Scale:	< 13 or deteriorating

2

Injuries	
Airway	Airway injury or potential airway injury
	Hoarseness or stridor
Chest	Evidence of respiratory compromise
	Cyanosis, crepitus, subcutaneous emphysema
	Suspicion of multiple rib fractures
	Severe pain
	Seatbelt abrasion, contusion, evidence of blunt impact
	Significant chest wall trauma
Haemorrhage	Severe haemorrhage or suspected severe haemorrhage
	Arterial bleeding requiring tourniquet control
Head	Suspected open/depressed skull fracture
	Signs of base of skull fracture
	> 2 episodes of vomiting
	Seizure following head injury
	head injury if patient on anticoagulants
	head injury with focal neurological deficit
Spine	Spinal trauma suggested by new, abnormal neurology
	Vsibile deformity
	Priapism
	Severe pain
Limbs	Fracture to 2 or more of femur, tibia, humerus
	Major compound fracture or open dislocation
	Crushed, degloved, mangled, pulseless limbs
	Amputation above wrist or ankle
Penetrating	All penetrating injuries except isolated superficial limb injuries
Abdomen	Severe pain, rigidity, distension, swelling
	Seatbelt abrasion, contusion, evidence of blunt impact
Pelvis	Suspected major pelvic fractures
Burns	> 20% BSA
	Suspected respiratory tract burns

3

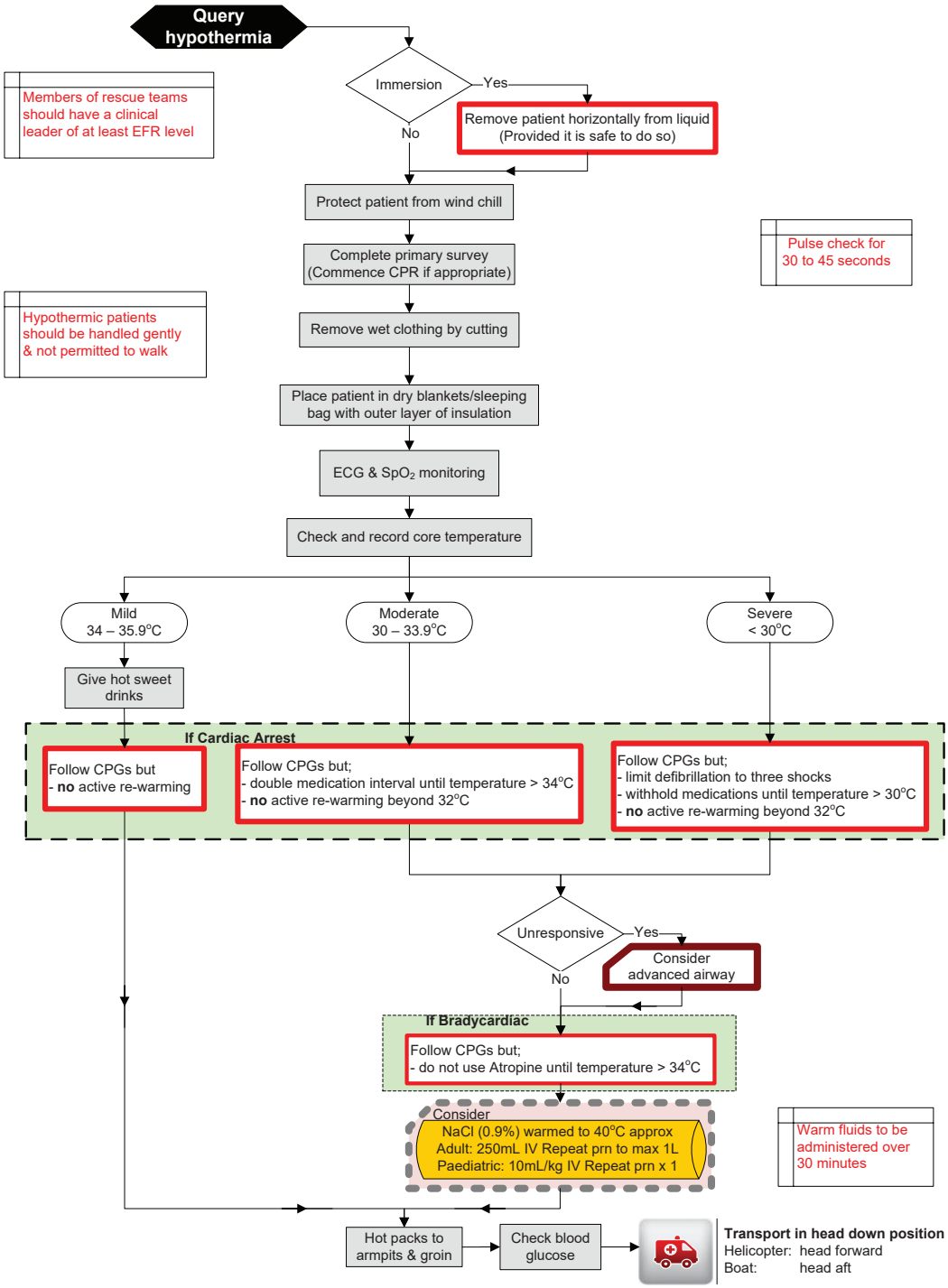
Concerning Mechanism of Injury	
Fall	> 3m (or 2 x patient's own height
	Fall off Ladder > 1 m
Large animal incident	Collision, fall , trampled
RTC	Death in same vehicle
	Ejection
	Significant intrusion
	Intrusion with compression
	Damage to A post of vehicle
	Prolonged extrication time (> 30 min)
	Motorcycle > 30 KPH
	Cyclist > 30 KPH
	Any pedestrian v vehicle
	Bullseye Windscreen
	High speed RTC (> 60 KPH)
Electrocution	High voltage electrocution
Burns	Isolated burns may be considered for triage direct to burns unit
Other	Any rapid deceleration incident Availabile information consistent with high risk of injury Focal blunt trauma to head or torso

MOI Criteria are not exclusive or absolute. Any significant injuries involving more than one body region or requiring specialist care to preserve life, limb or quality of life should be considered for triage to MTC

Hypothermia

5/6.9.1
Version 4, 01/2021

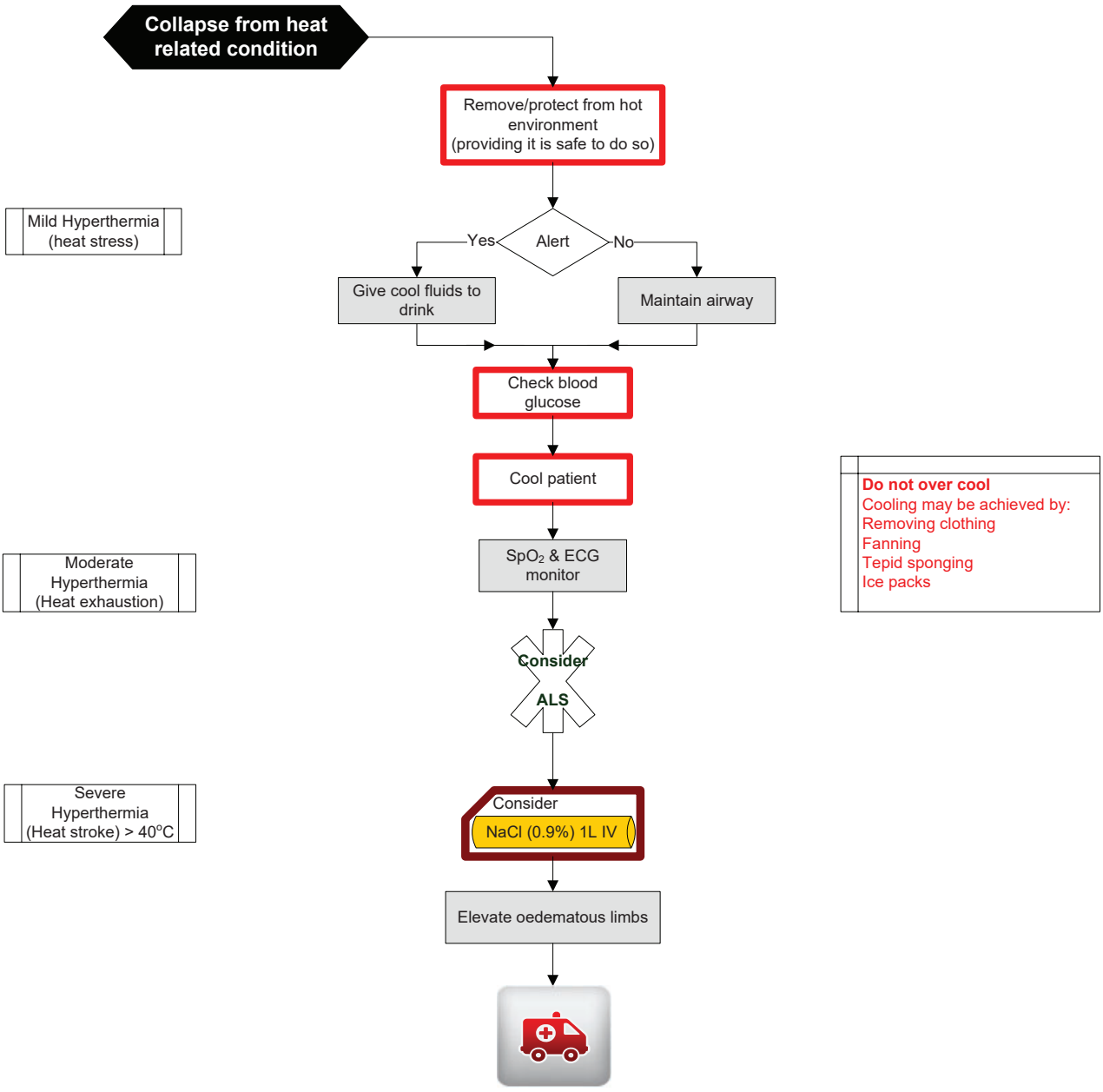
P AP



Heat Related Emergency – Adult

4/5/6.9.2
Version 3, 01/2021

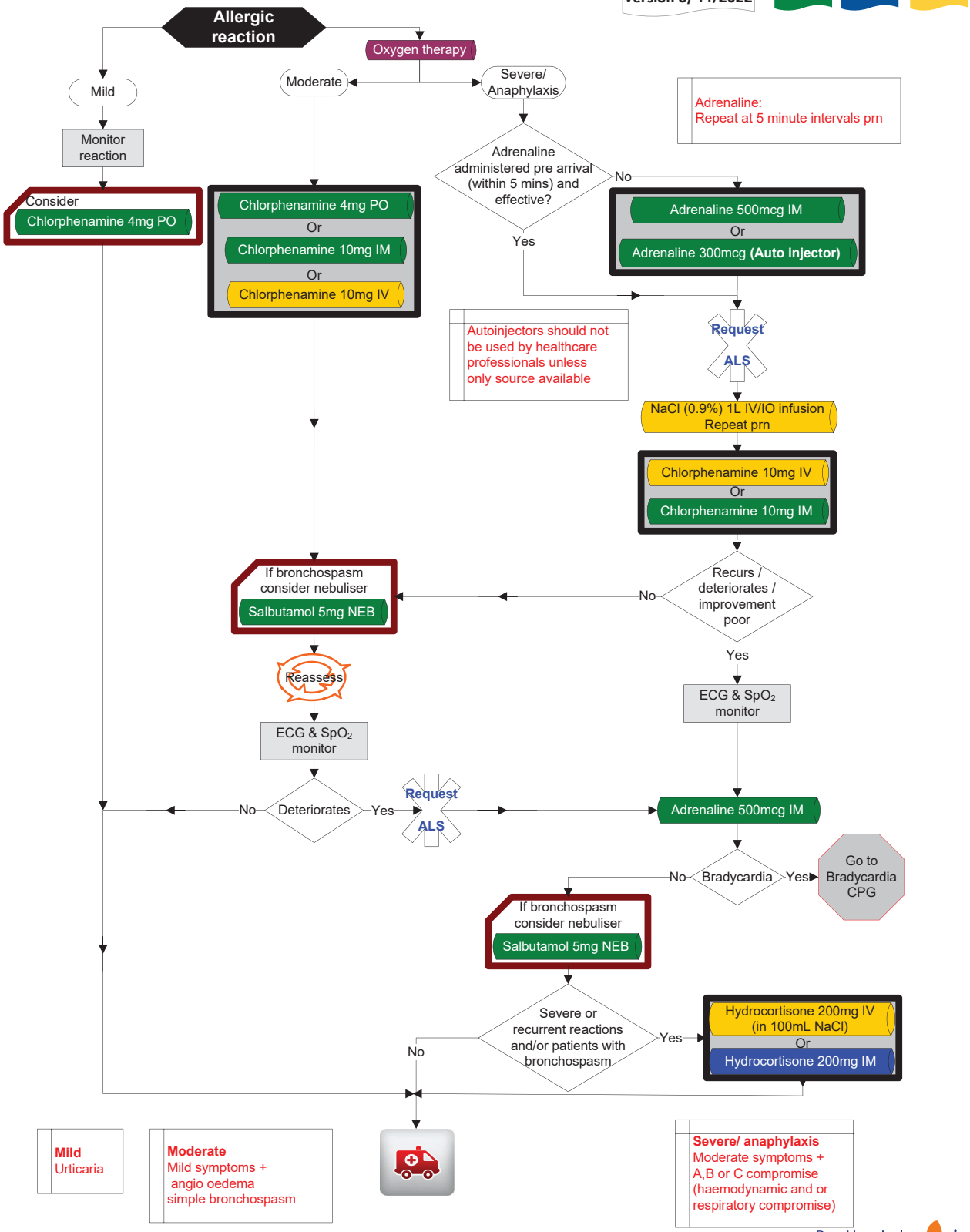
EMT P AP



Allergic Reaction/Anaphylaxis – Adult

4/5/6.10.1
Version 5, 11/2022

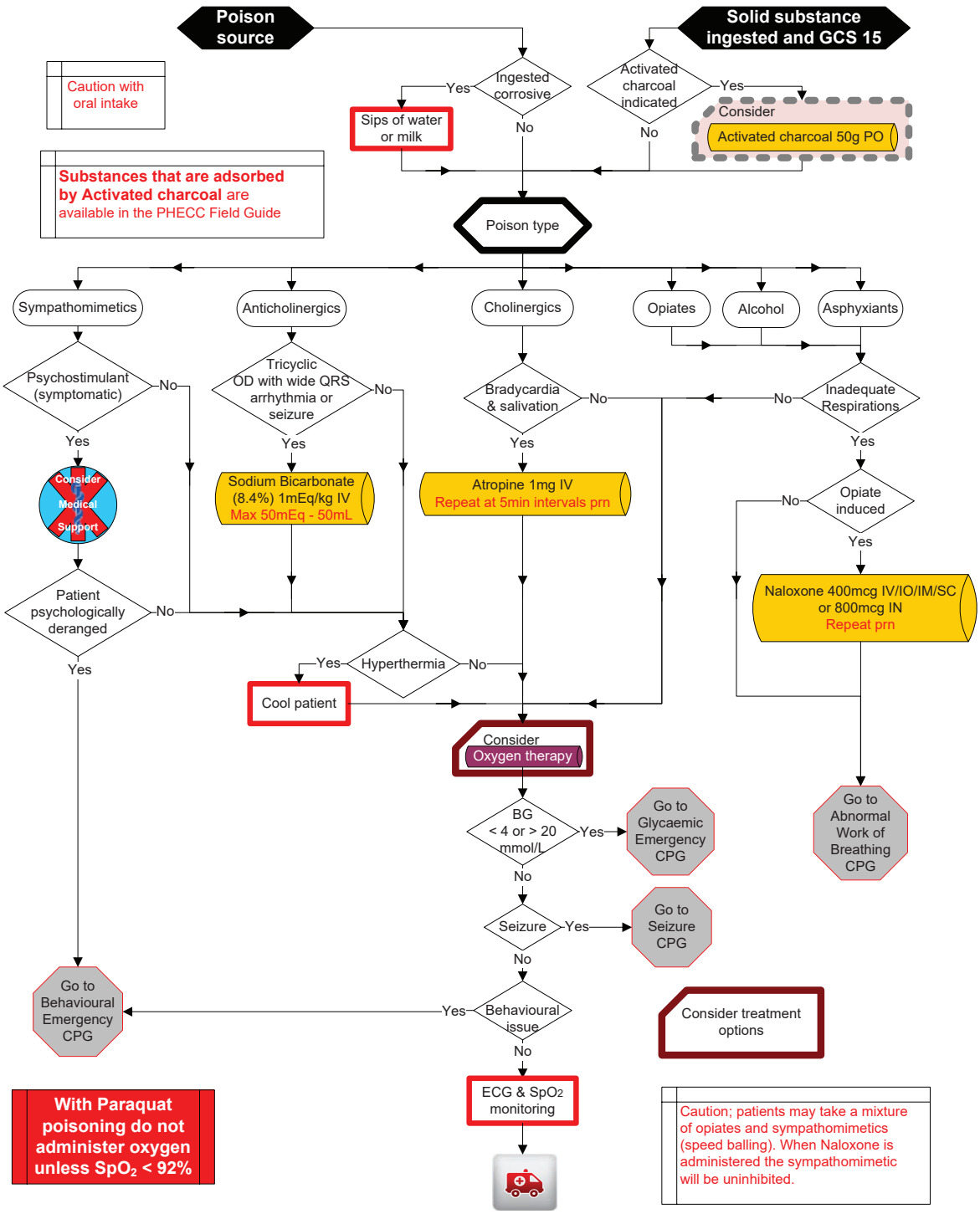
EMT P AP



Poisons – Adult

6.10.2
Version 3, 12/2020

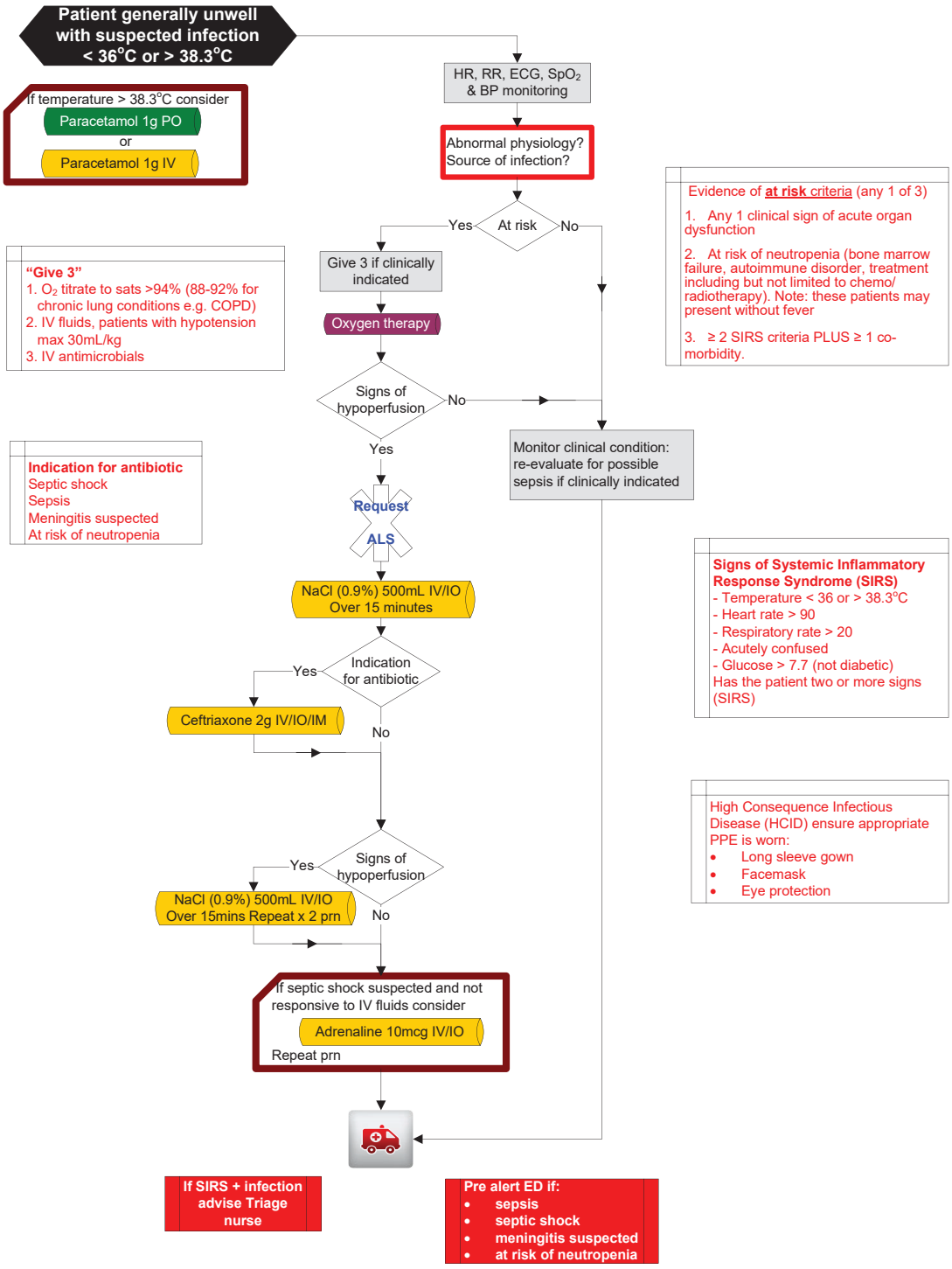
AP



Sepsis – Adult

4/5/6.11.1
Version 6, 01/2023

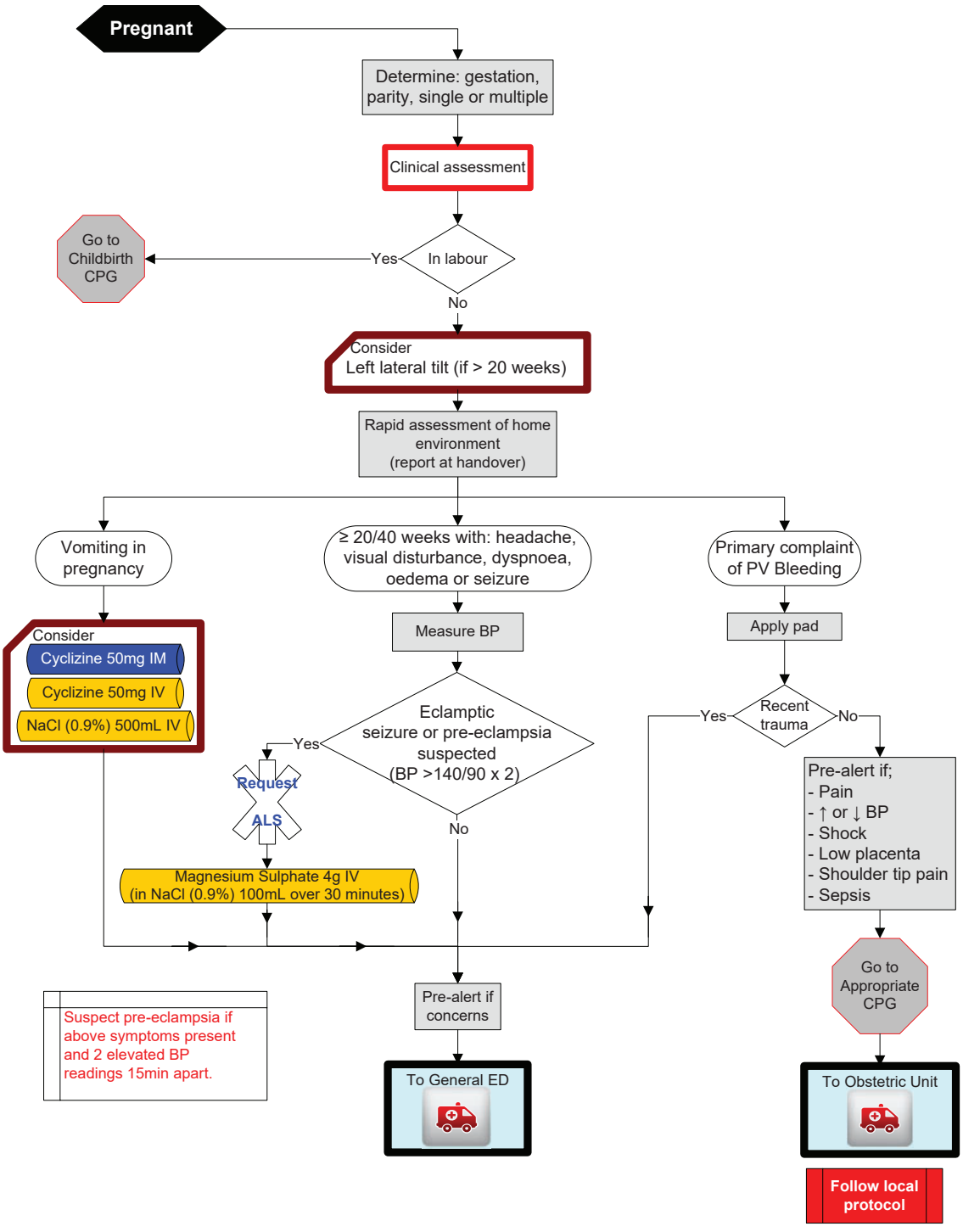
EMT P AP



Pregnancy Related Emergencies

4/5/6.12.1
Version 3, 01/2021

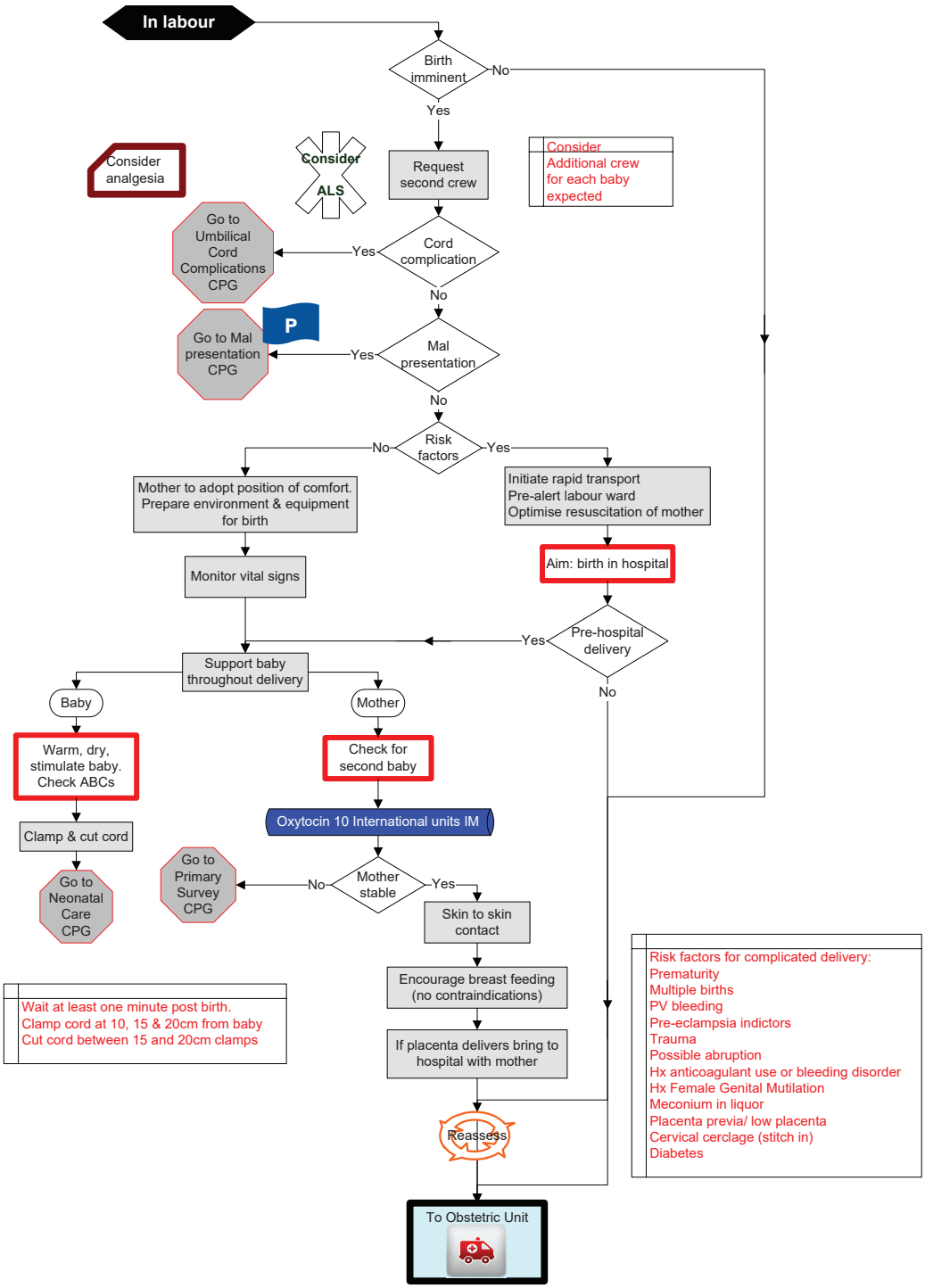
EMT P AP



Pre-Hospital Emergency Childbirth

4/5/6.12.2
Version 4, 01/2021

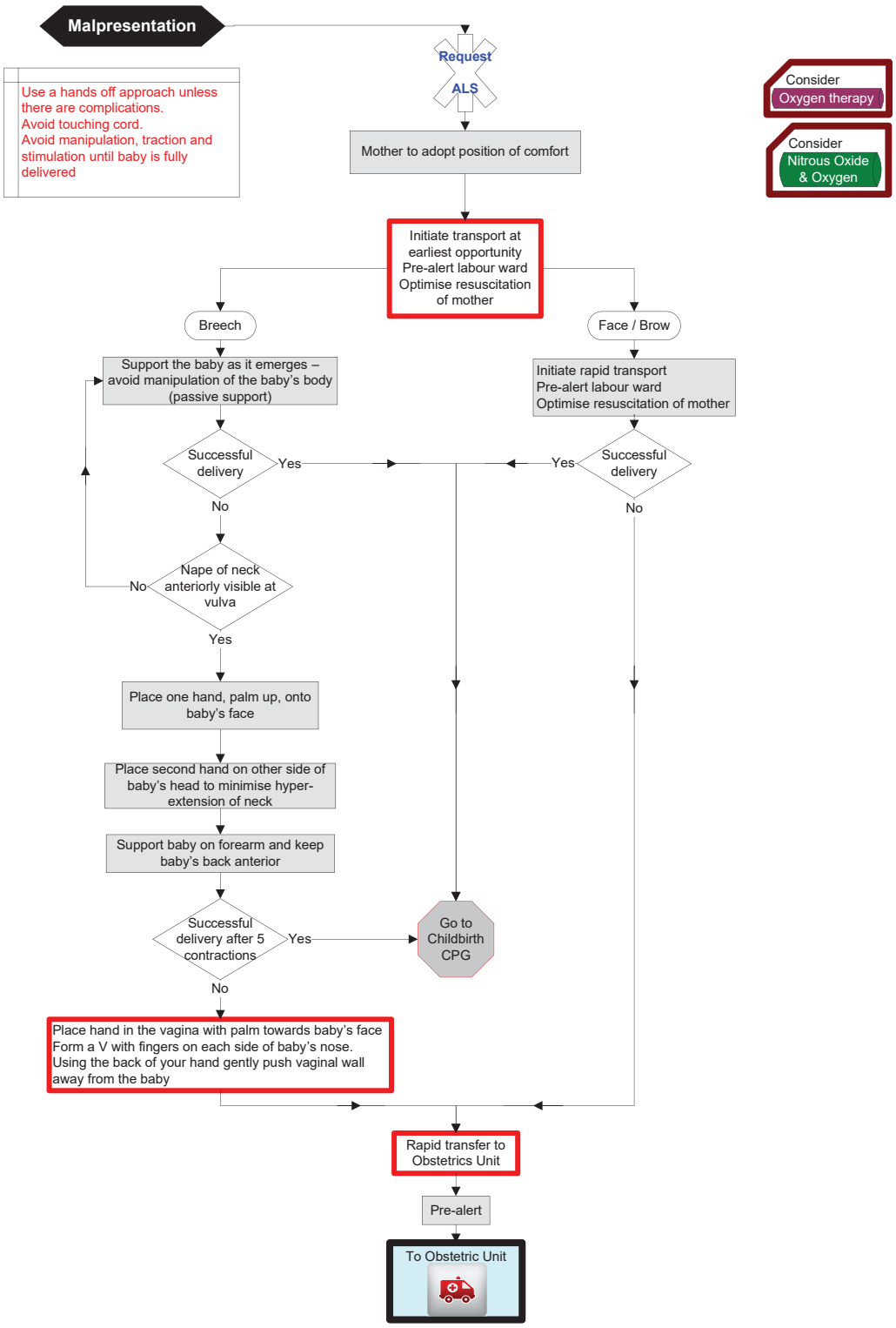
EMT P AP



Malpresentations (Breech, face or brow)

5/6.12.3
Version 4, 10/2022

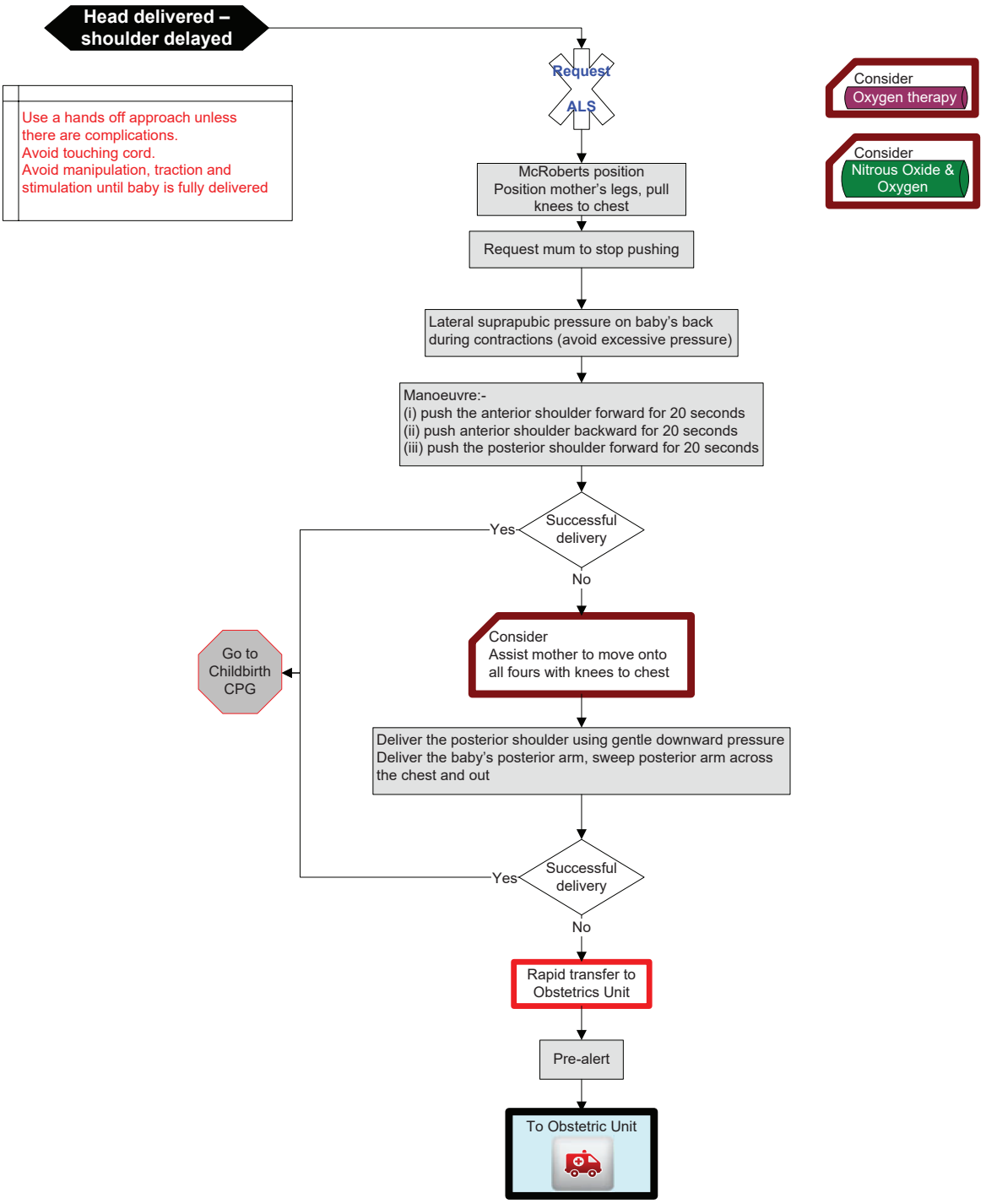
P AP



Shoulder Dystocia

5/6.12.4
Version 1, 03/2021

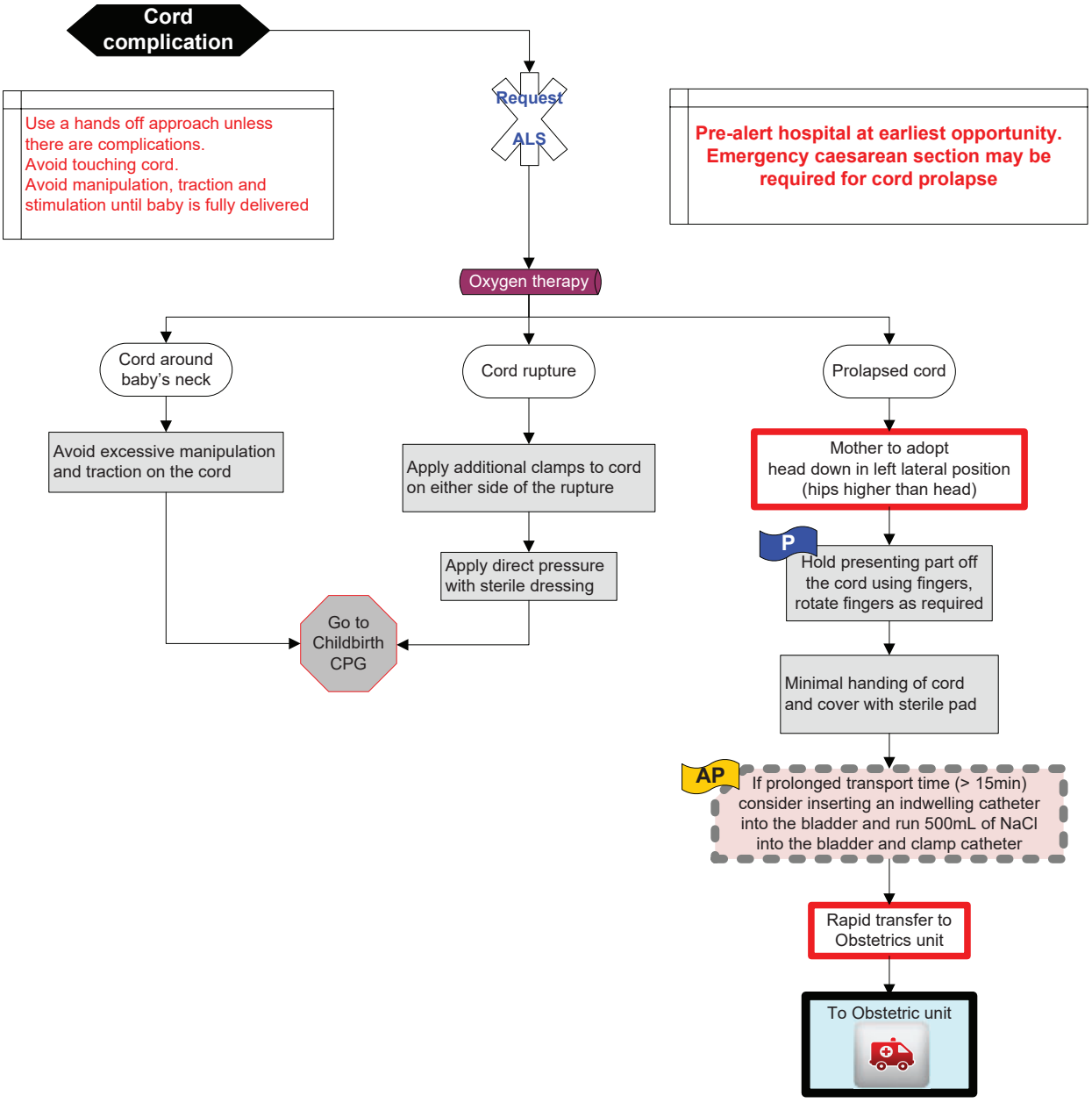
P AP



Umbilical Cord Complications

4/5/6.12.5
Version 3, 01/2021

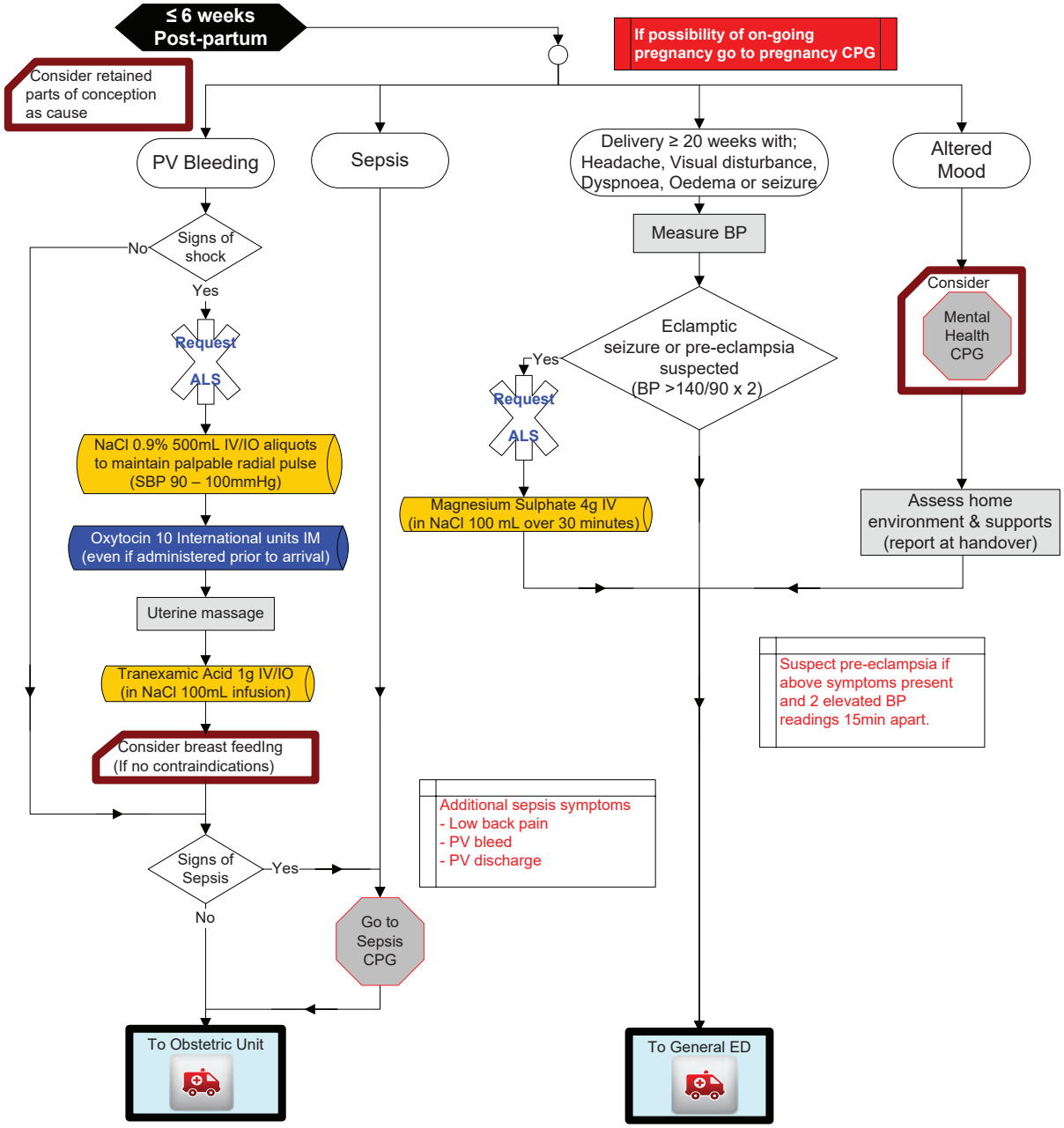
EMT P AP



Post Pregnancy Care
(Including miscarriage and abortion)

4/5/6.12.6
Version 4, 01/2021

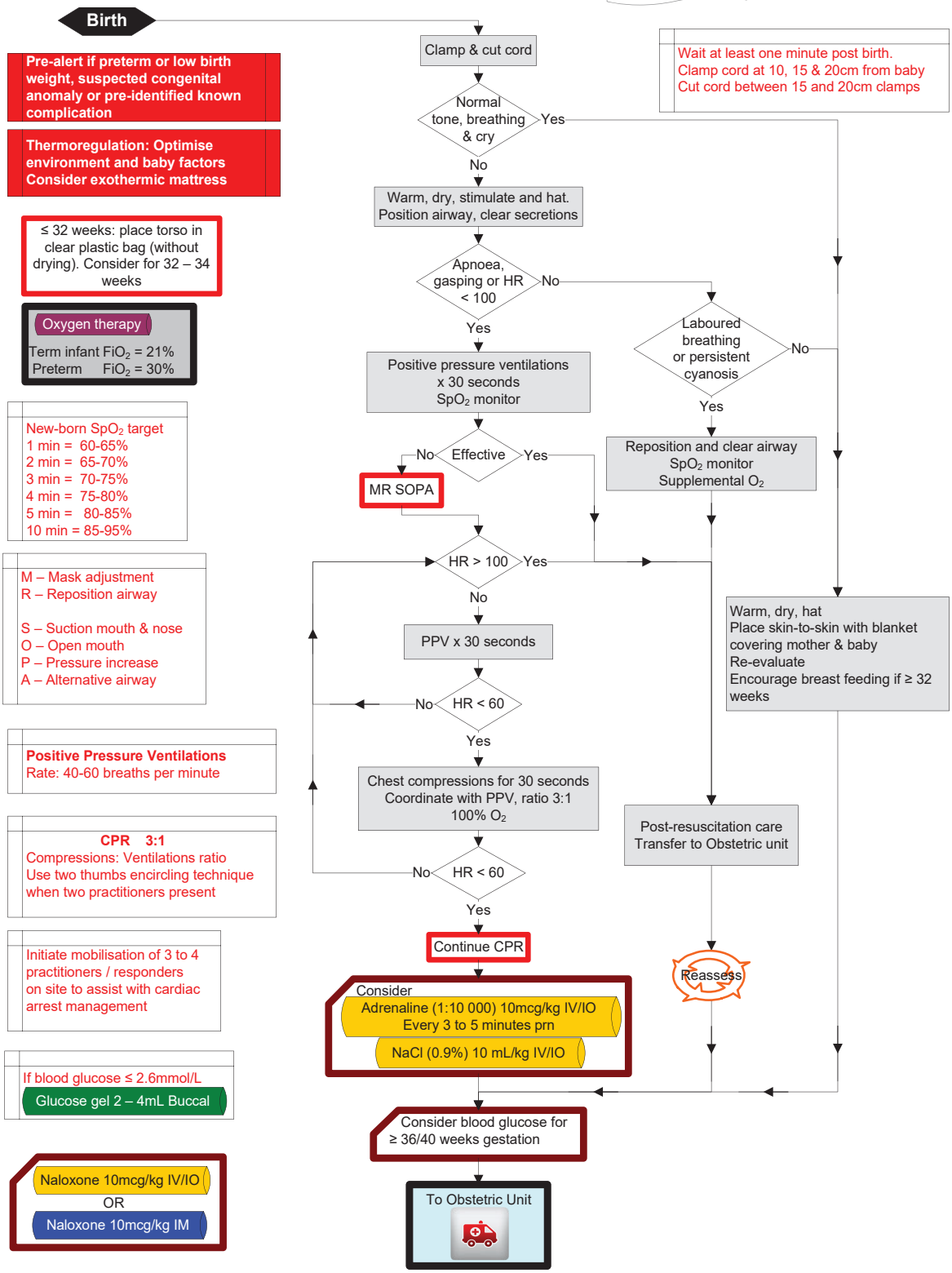
EMT P AP



New-born Neonatal Care and Resuscitation

4/5/6.12.7
Version 6, 05/2023

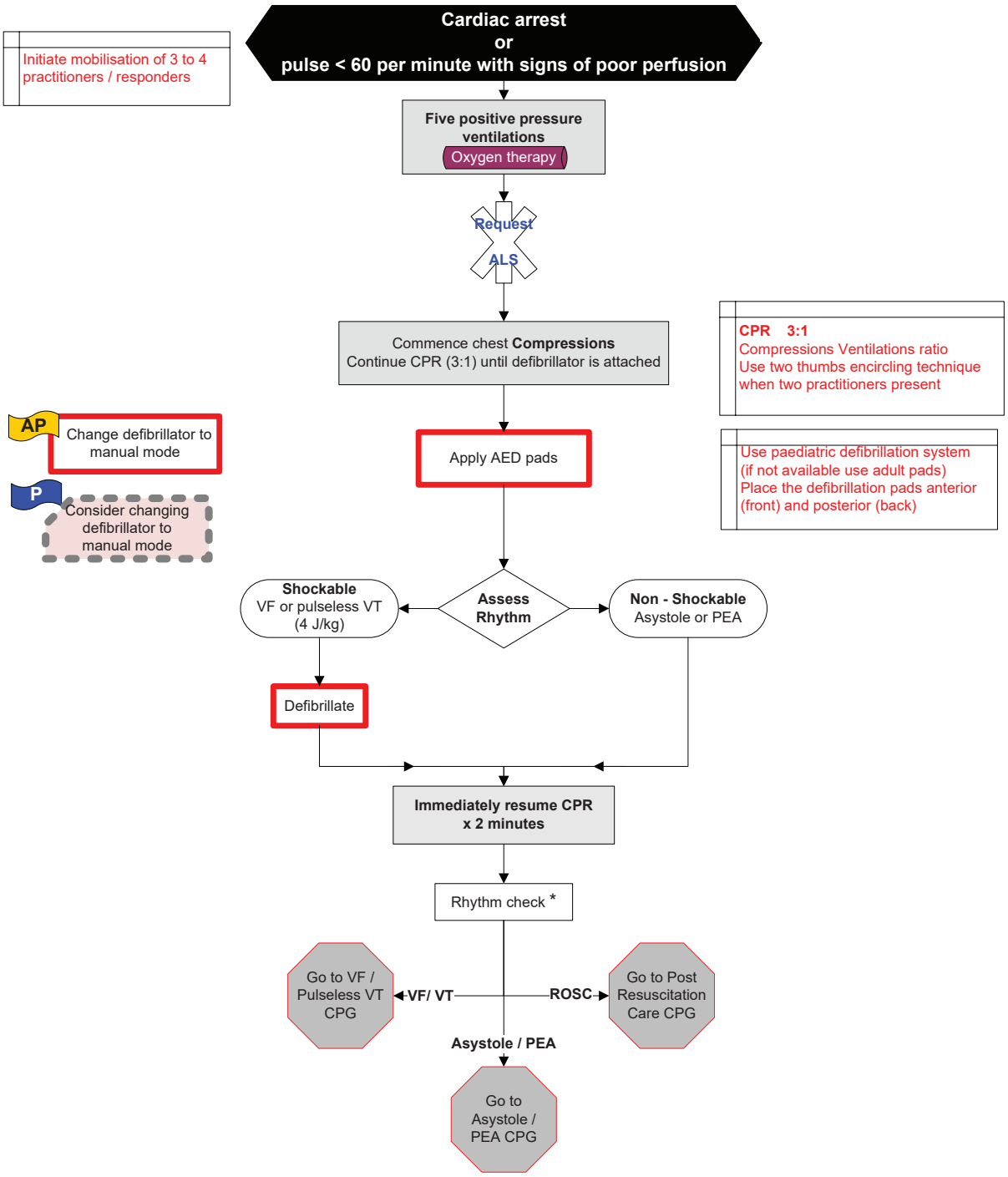
EMT P AP



Neonatal Resuscitation (≤ 6 weeks)

4/5/6.12.8
Version 1, 01/2021

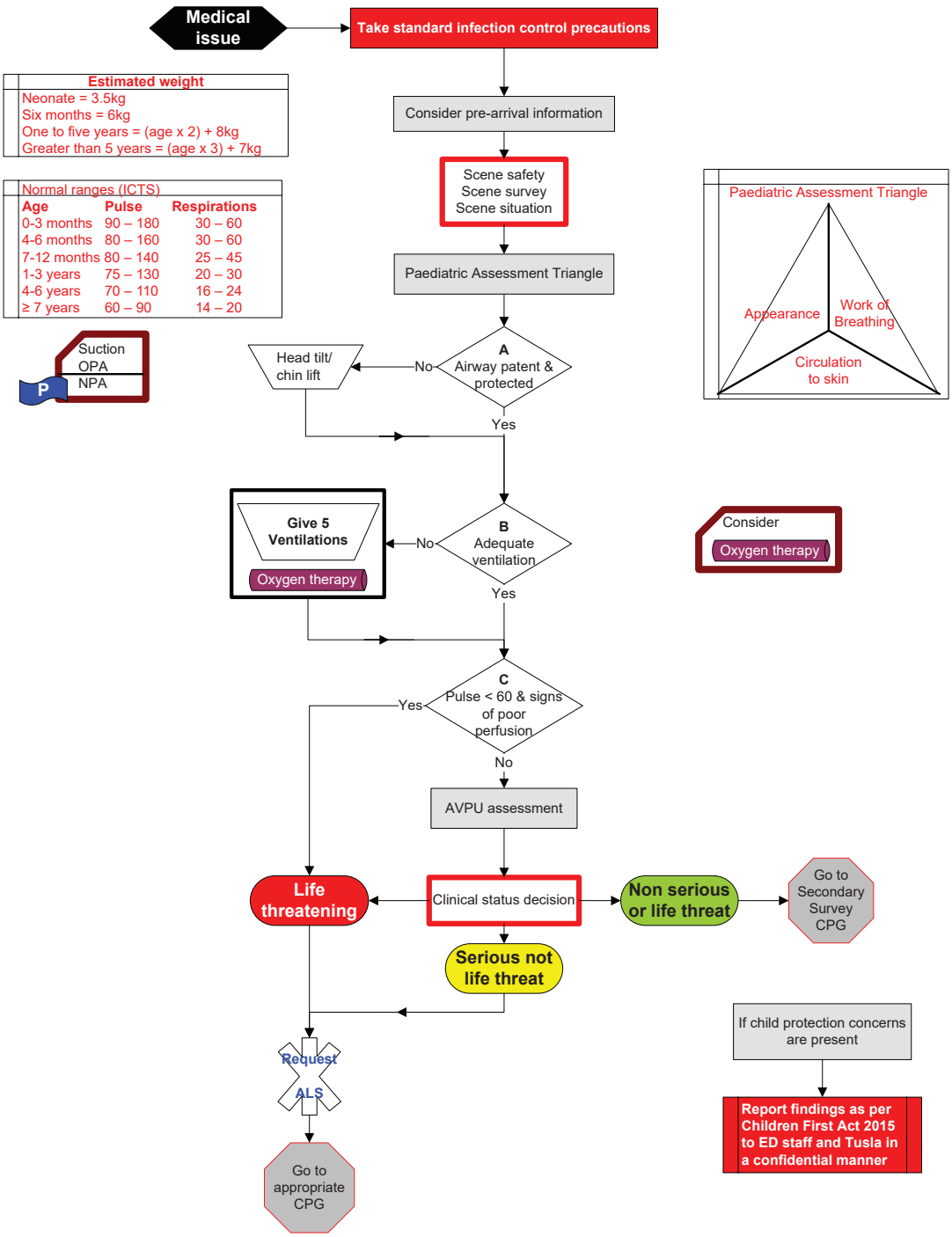
EMT P AP



Primary Survey Medical – Paediatric

4/5/6.13.1
Version 7, 01/2021

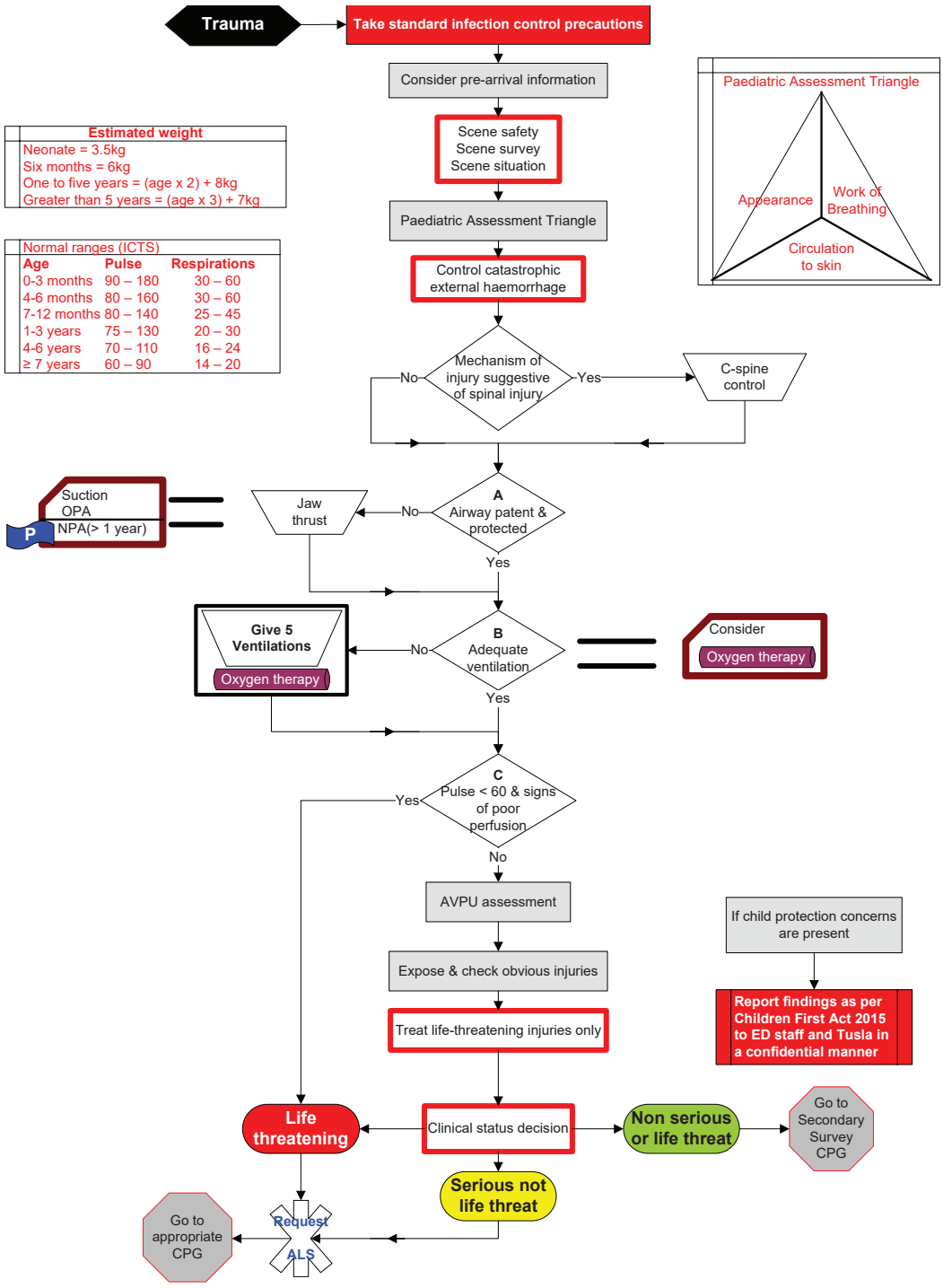
EMT P AP



Primary Survey Trauma – Paediatric

4/5/6.13.2
Version 7, 01/2021

EMT P AP



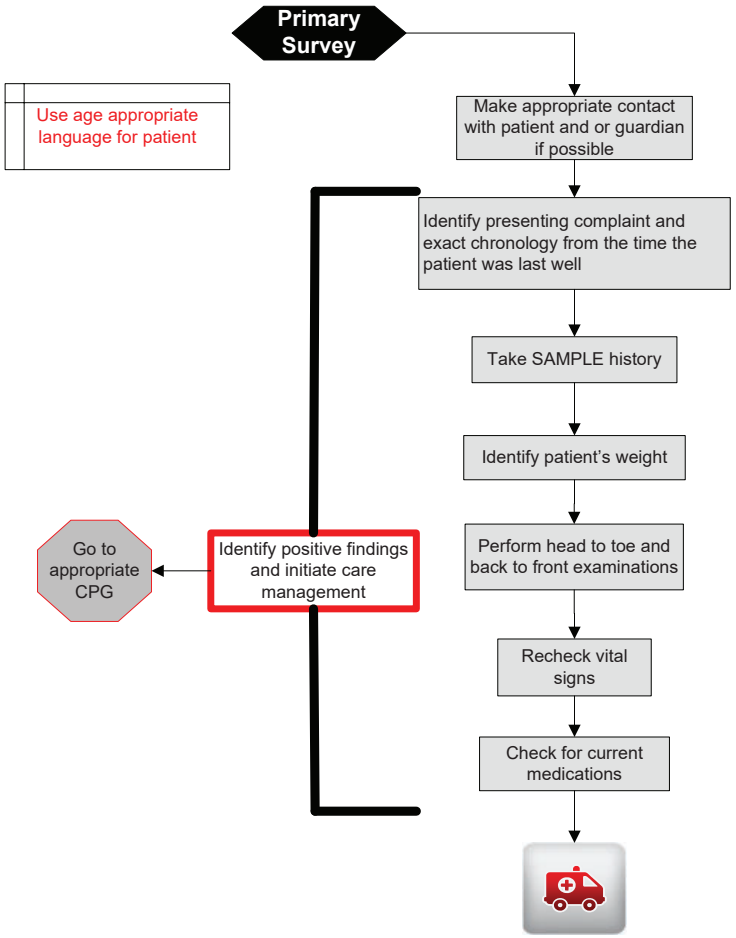
Estimated weight
Neonate = 3.5kg
Six months = 6kg
One to five years = (age x 2) + 8kg
Greater than 5 years = (age x 3) + 7kg

Normal ranges (ICTS)		
Age	**Pulse**	**Respirations**
0-3 months	90 – 180	30 – 60
4-6 months	80 – 160	30 – 60
7-12 months	80 – 140	25 – 45
1-3 years	75 – 130	20 – 30
4-6 years	70 – 110	16 – 24
≥ 7 years	60 – 90	14 – 20

Secondary Survey – Paediatric

4/5/6.13.4
Version 5, 01/2021

EMT P AP



Use age appropriate language for patient

Normal ranges (ICTS)

Age	Pulse	Respirations
0-3 months	90 – 180	30 – 60
4-6 months	80 – 160	30 – 60
7-12 months	80 – 140	25 – 45
1-3 years	75 – 130	20 – 30
4-6 years	70 – 110	16 – 24
≥ 7 years	60 – 90	14 – 20

Estimated weight

Neonate = 3.5kg
Six months = 6kg
One to five years = (age x 2) + 8kg
Greater than 5 years = (age x 3) + 7kg

Children and adolescents should always be examined with a chaperone (usually a parent) where possible

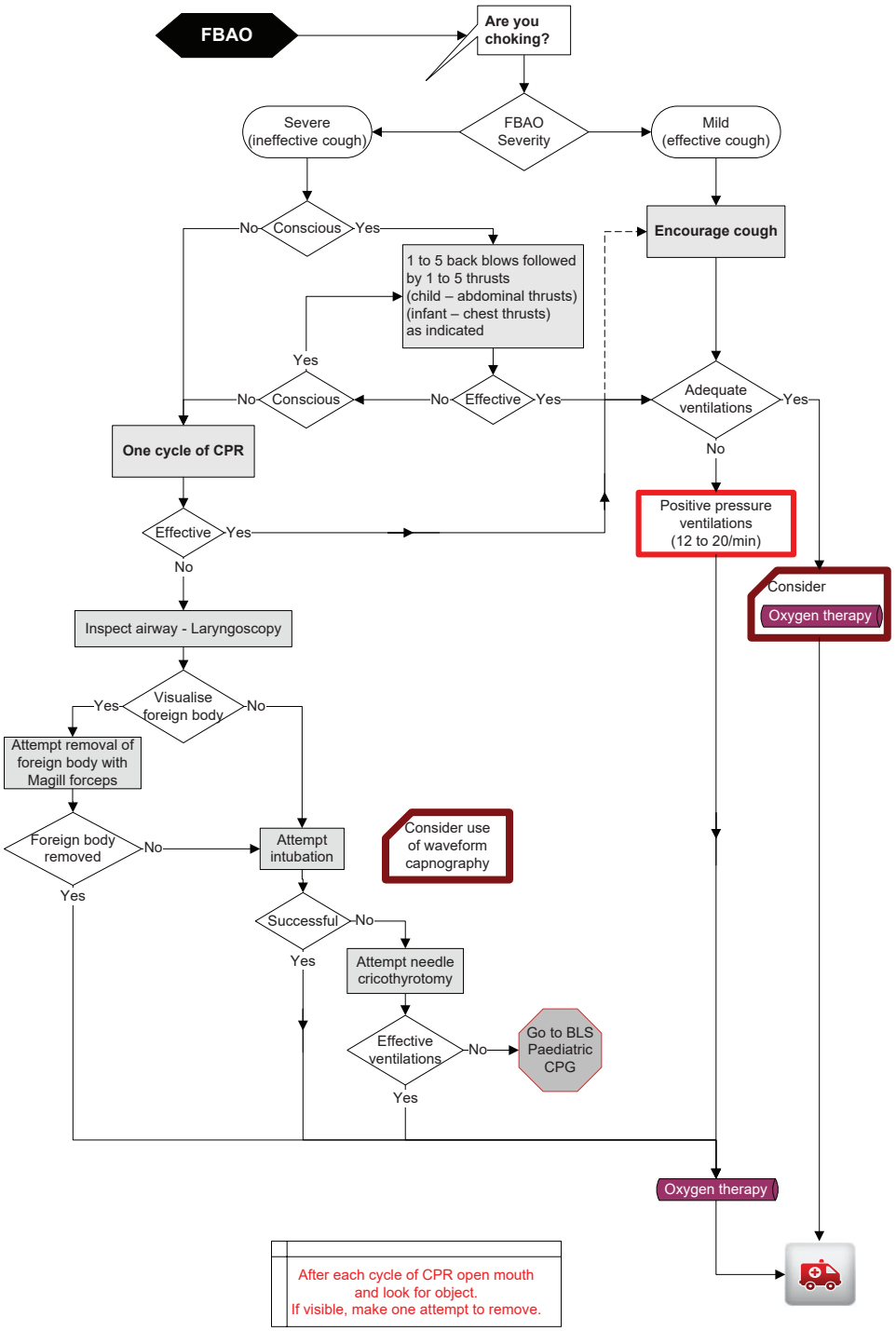
If child protection concerns are present

Report findings as per Children First Act 2015 to ED staff and Tusla in a confidential manner

Foreign Body Airway Obstruction – Paediatric

6.13.5
Version 4, 03/2021

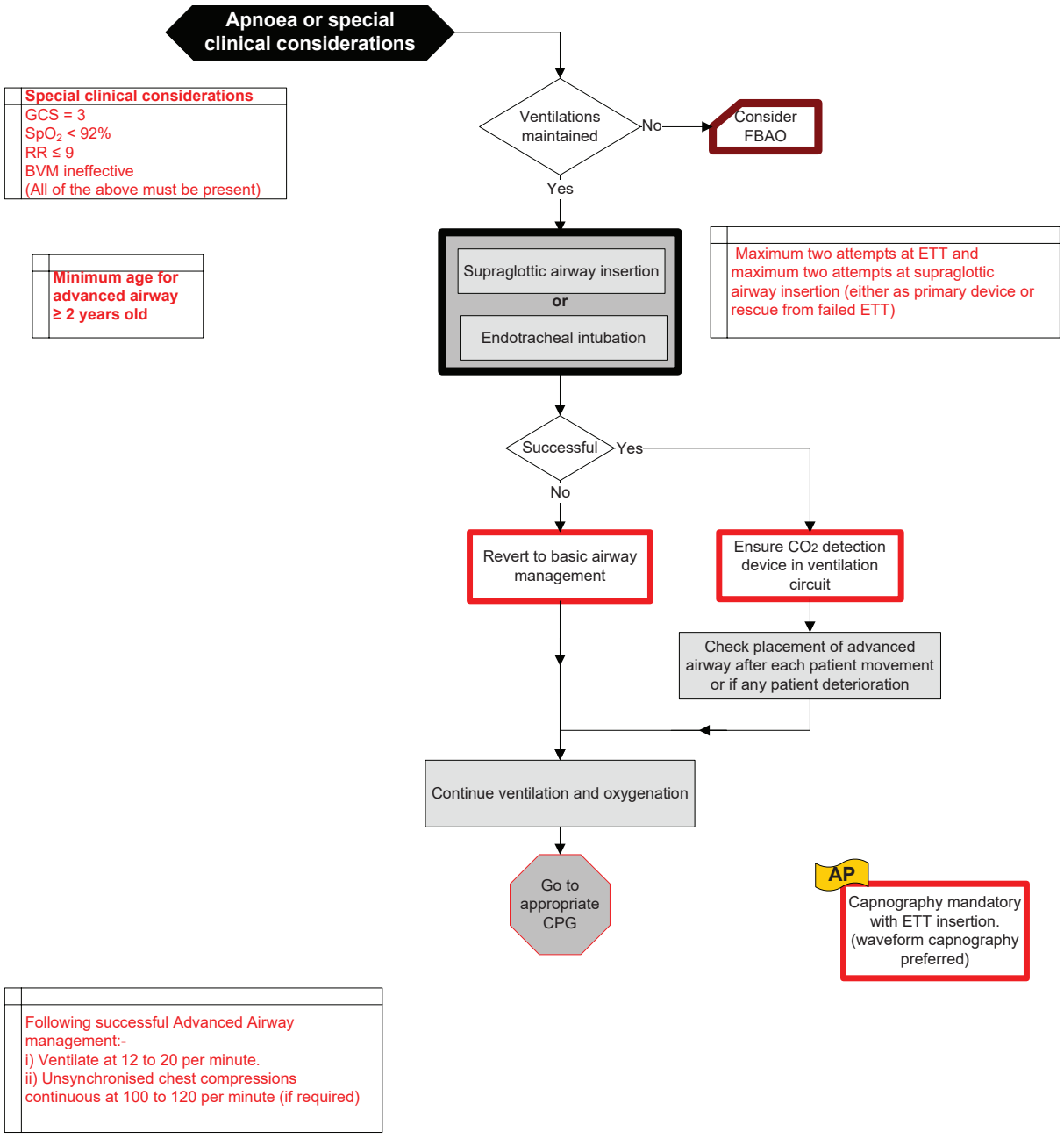
AP



Advanced Airway Management – Paediatric

6.13.6
Version 4, 12/2020

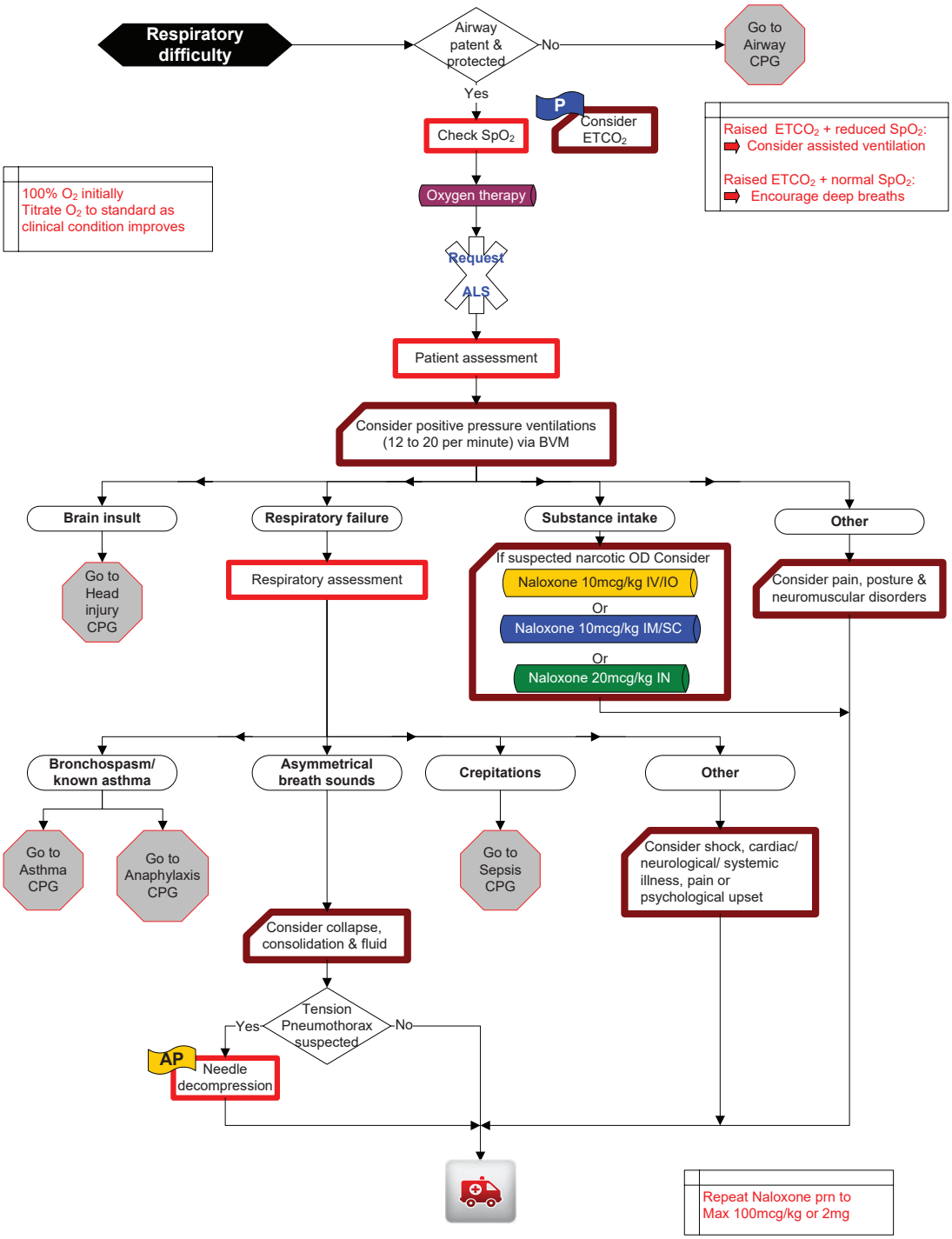
AP



Abnormal Work of Breathing - Paediatric

4/5/6.13.7
Version 4, 03/2021

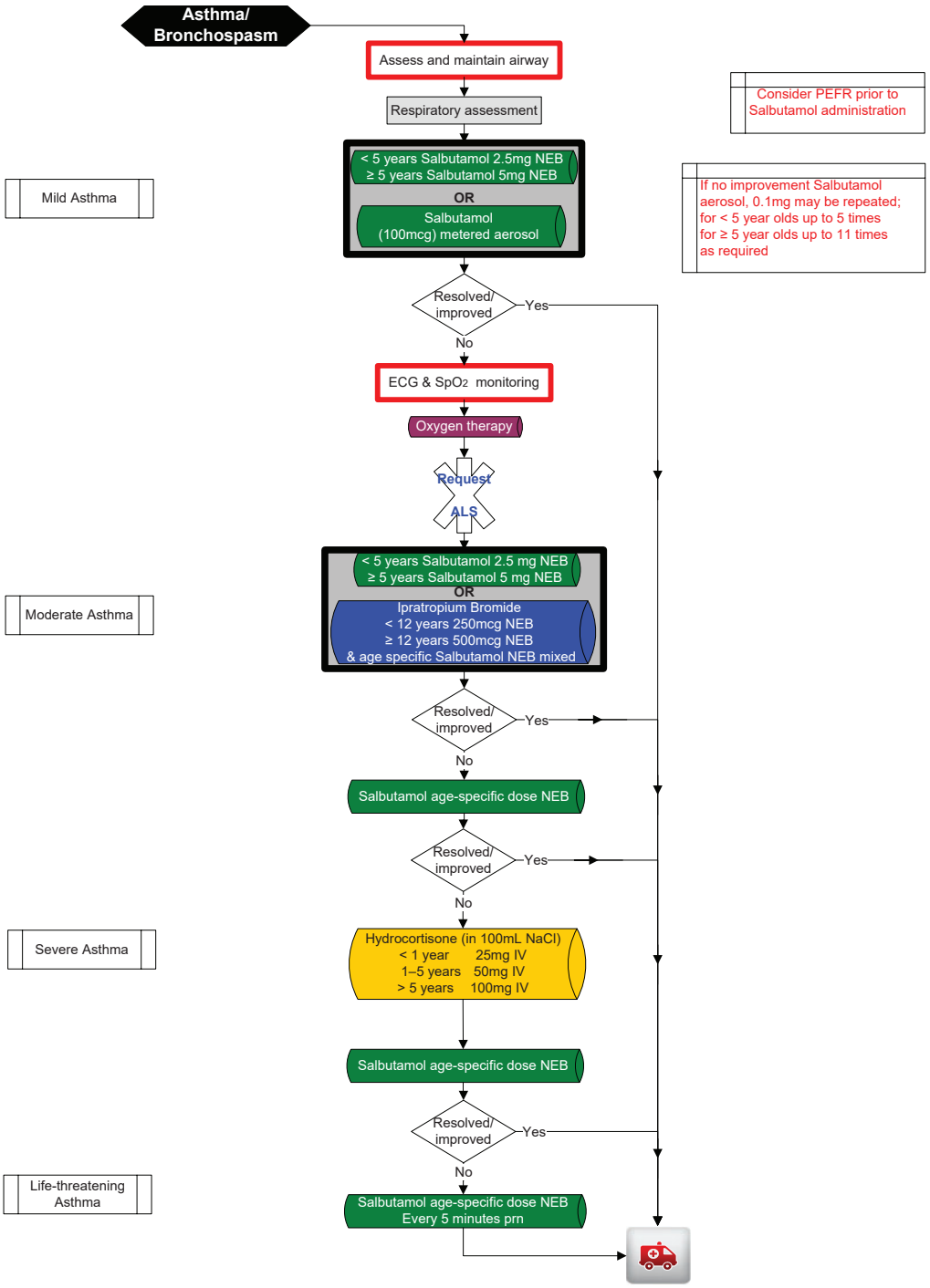
EMT P AP



Asthma – Paediatric

4/5/6.13.8
Version 4, 01/2021

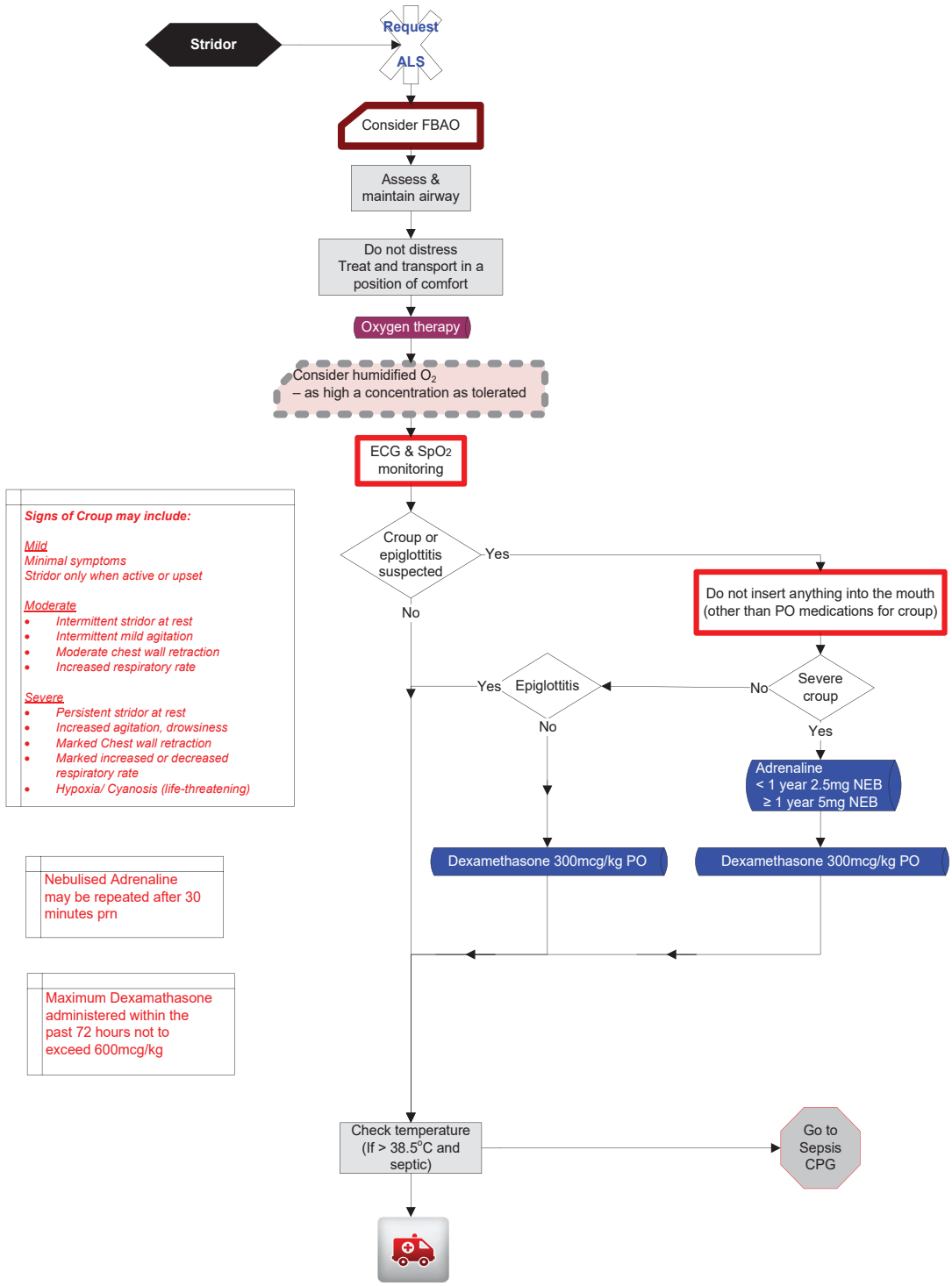
EMT P AP



Stridor – Paediatric

4/5/6.13.9
Version 6, 10/2022

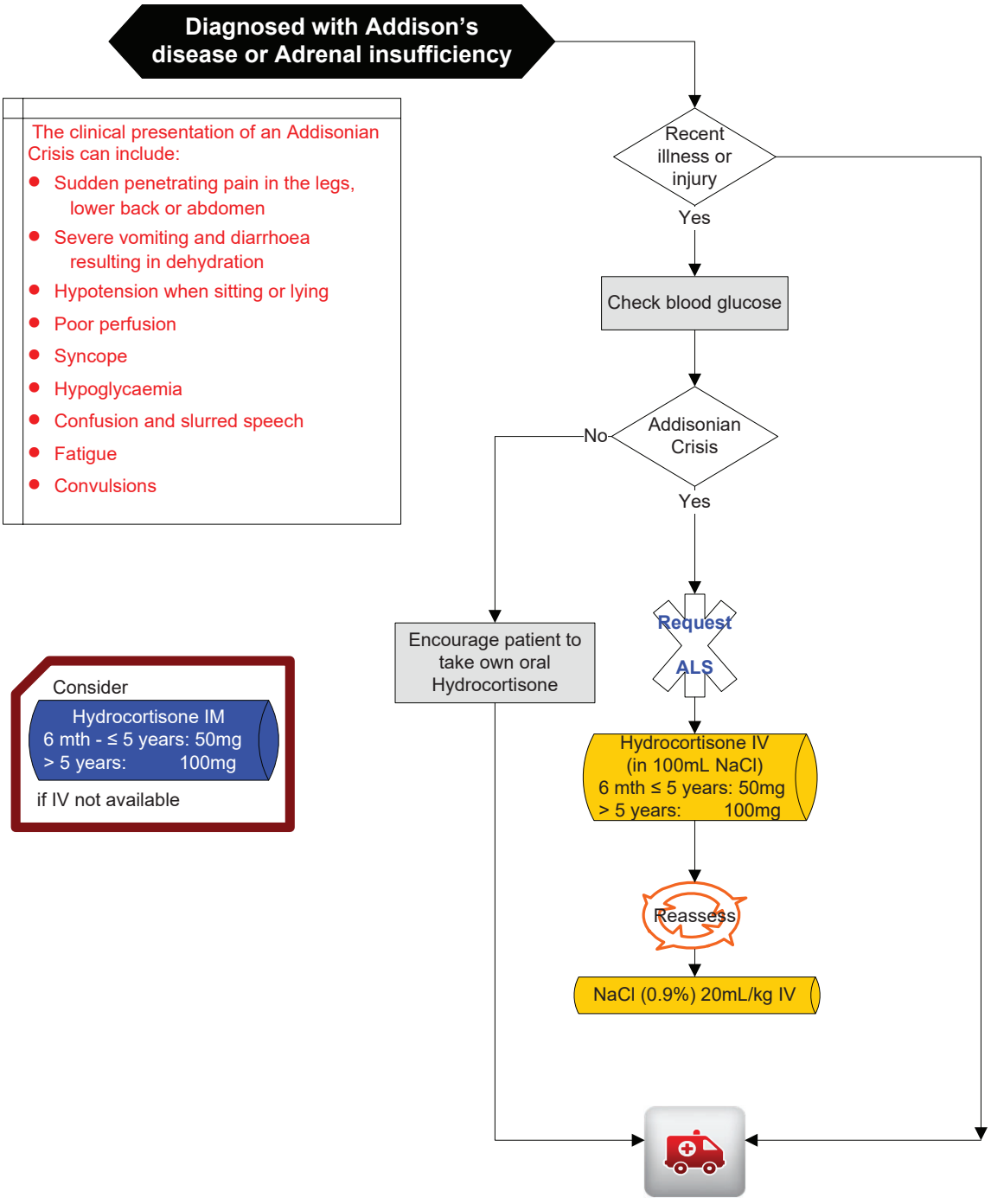
EMT P AP



Adrenal Insufficiency – Paediatric

5/6.13.10
Version 2, 04/2021

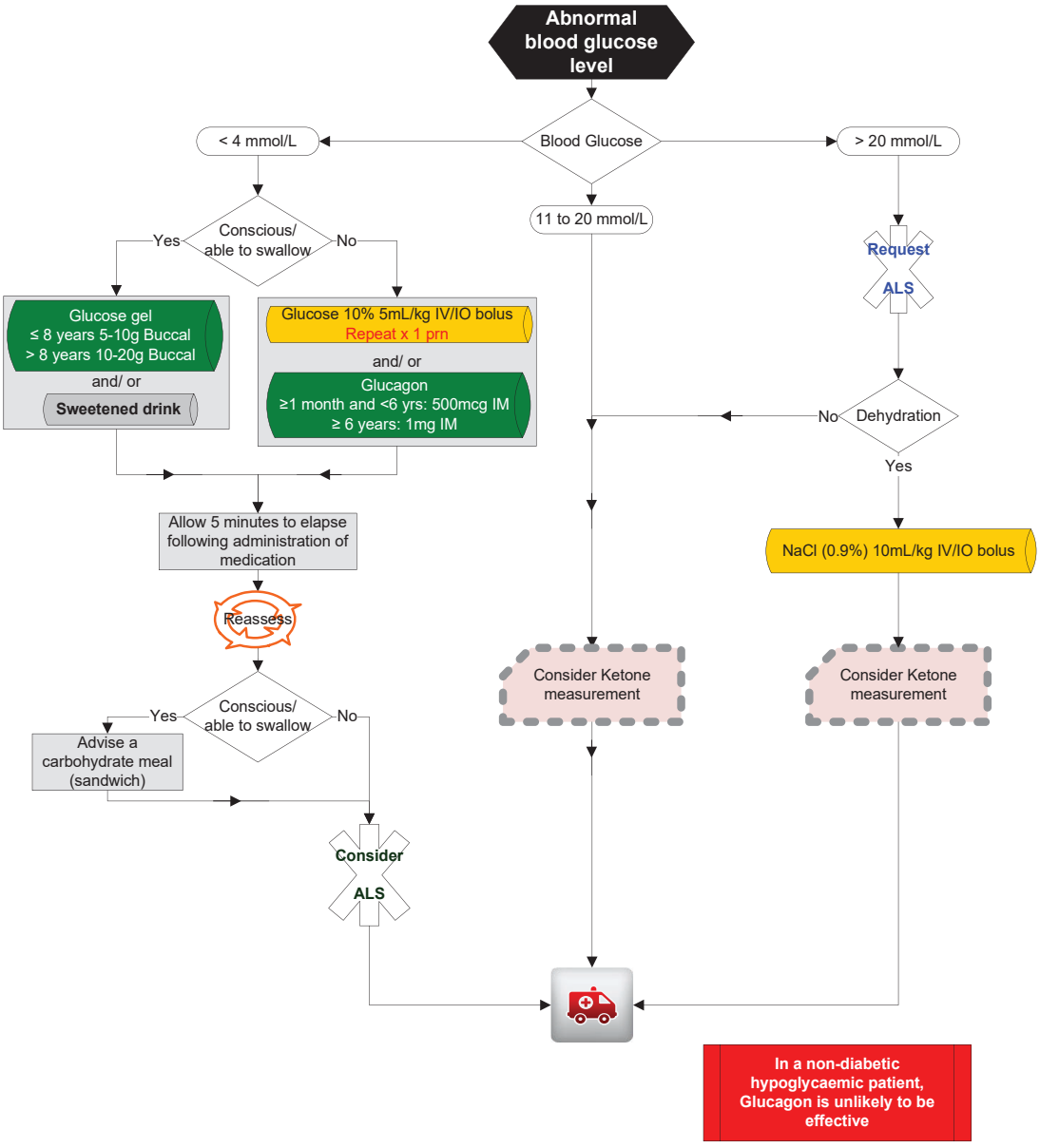
P AP



Glycaemic Emergency – Paediatric

4/5/6.13.11
Version 7, 11/2022

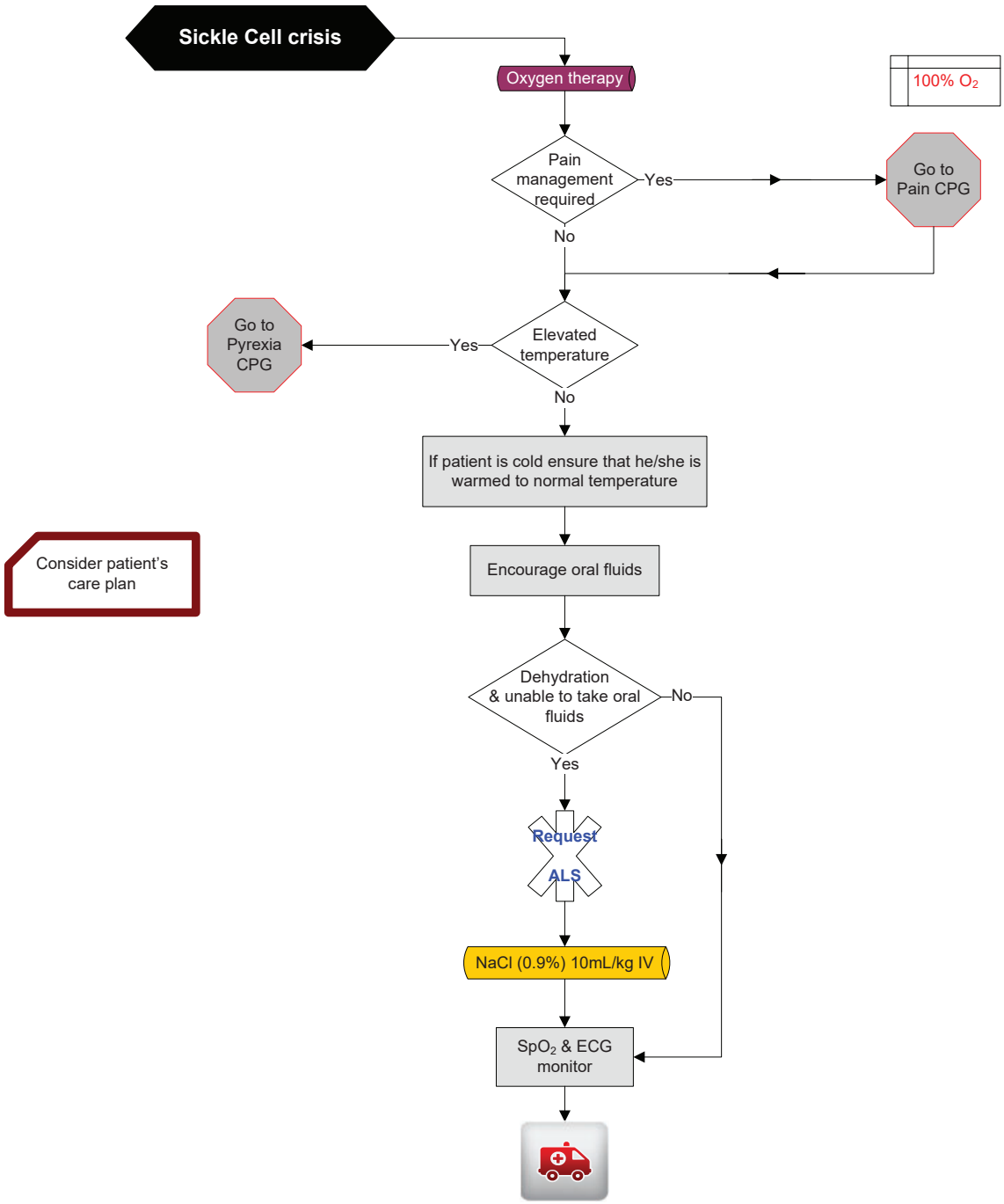
EMT P AP



Sickle Cell Crisis – Paediatric

4/5/6.13.12
Version 2, 01/2021

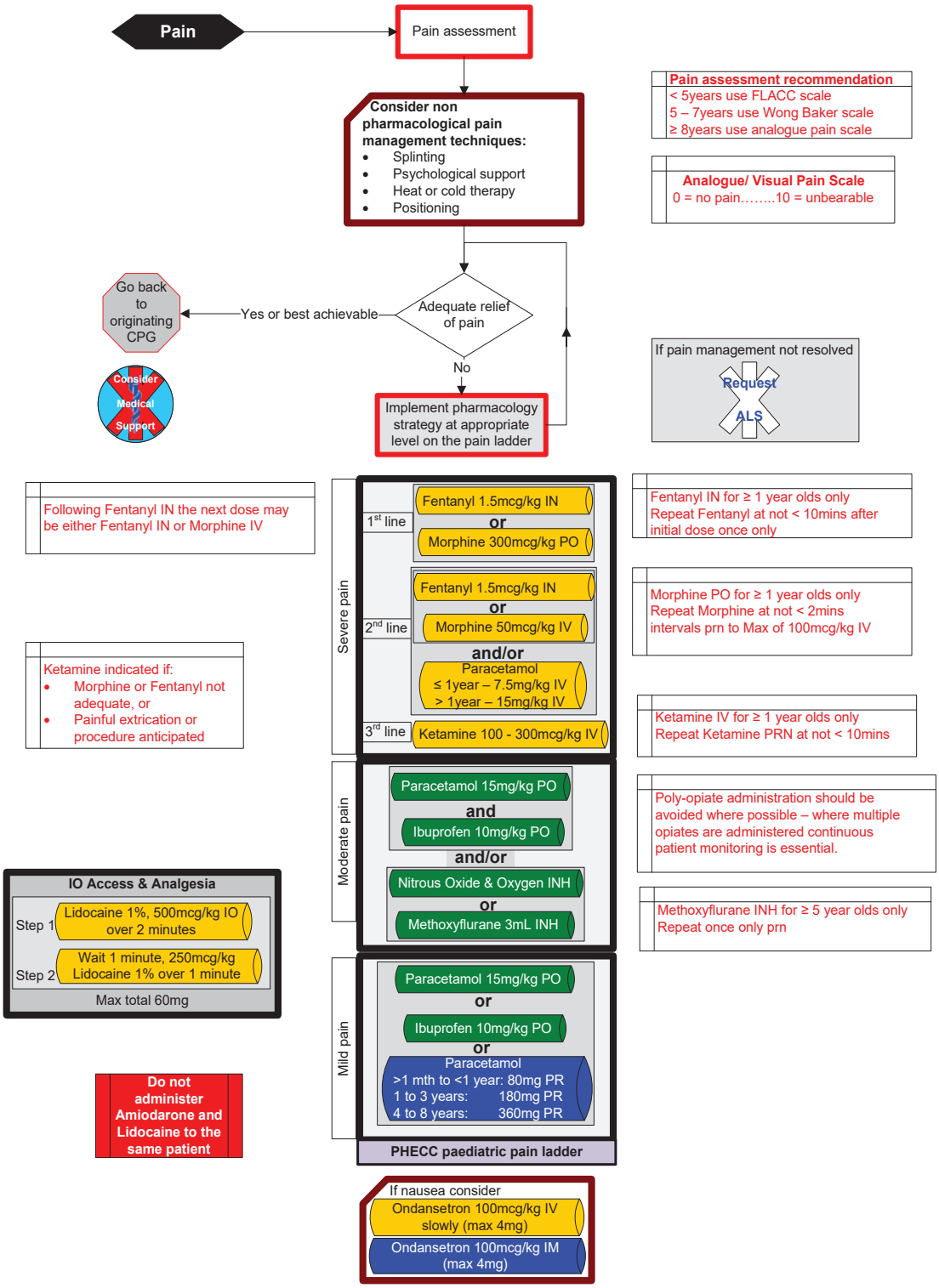
EMT P AP



Pain Management – Paediatric

4/5/6.13.13
Version 10,

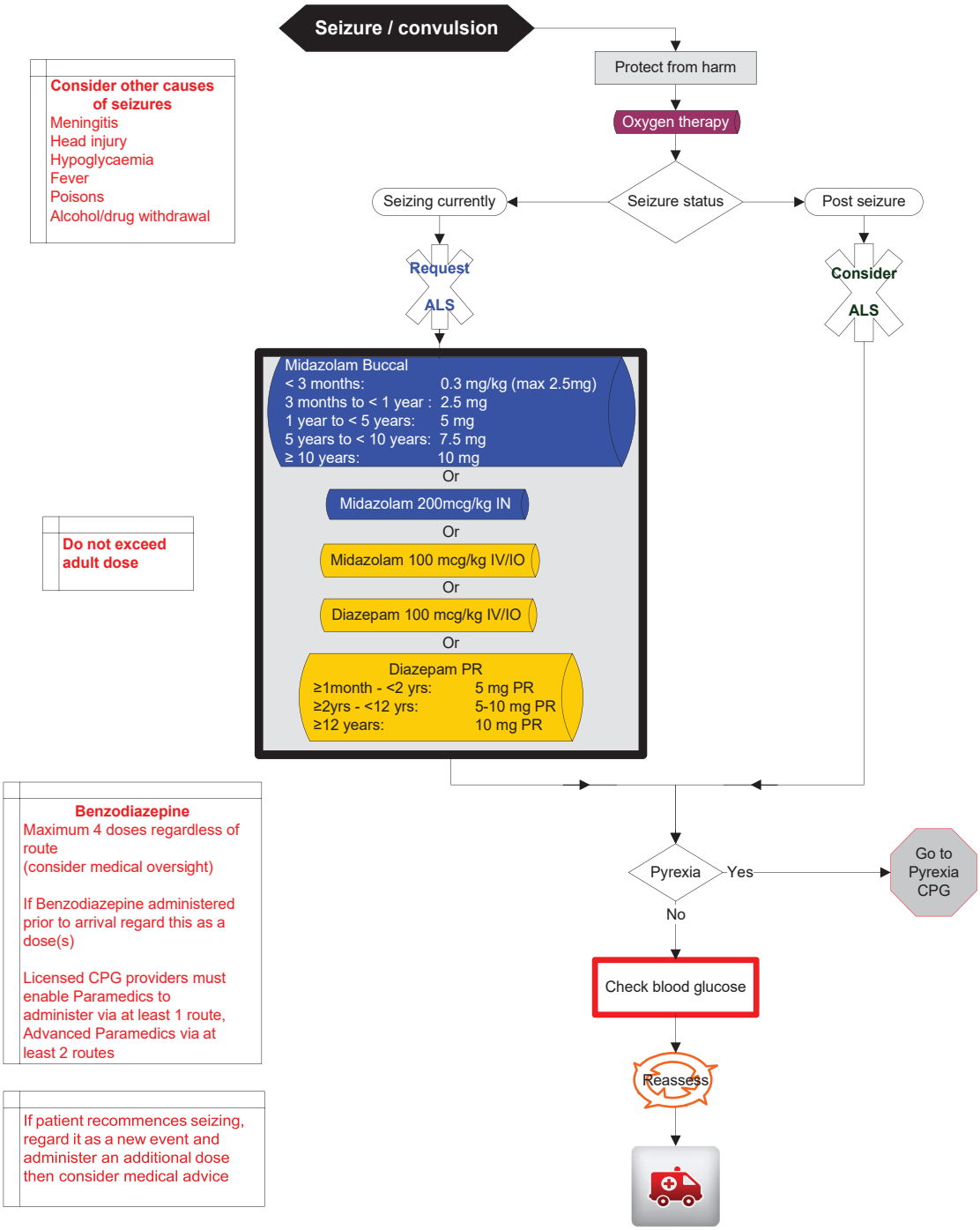
EMT P AP



Seizure/Convulsion – Paediatric

5/6.13.14
Version 8, 01/2023

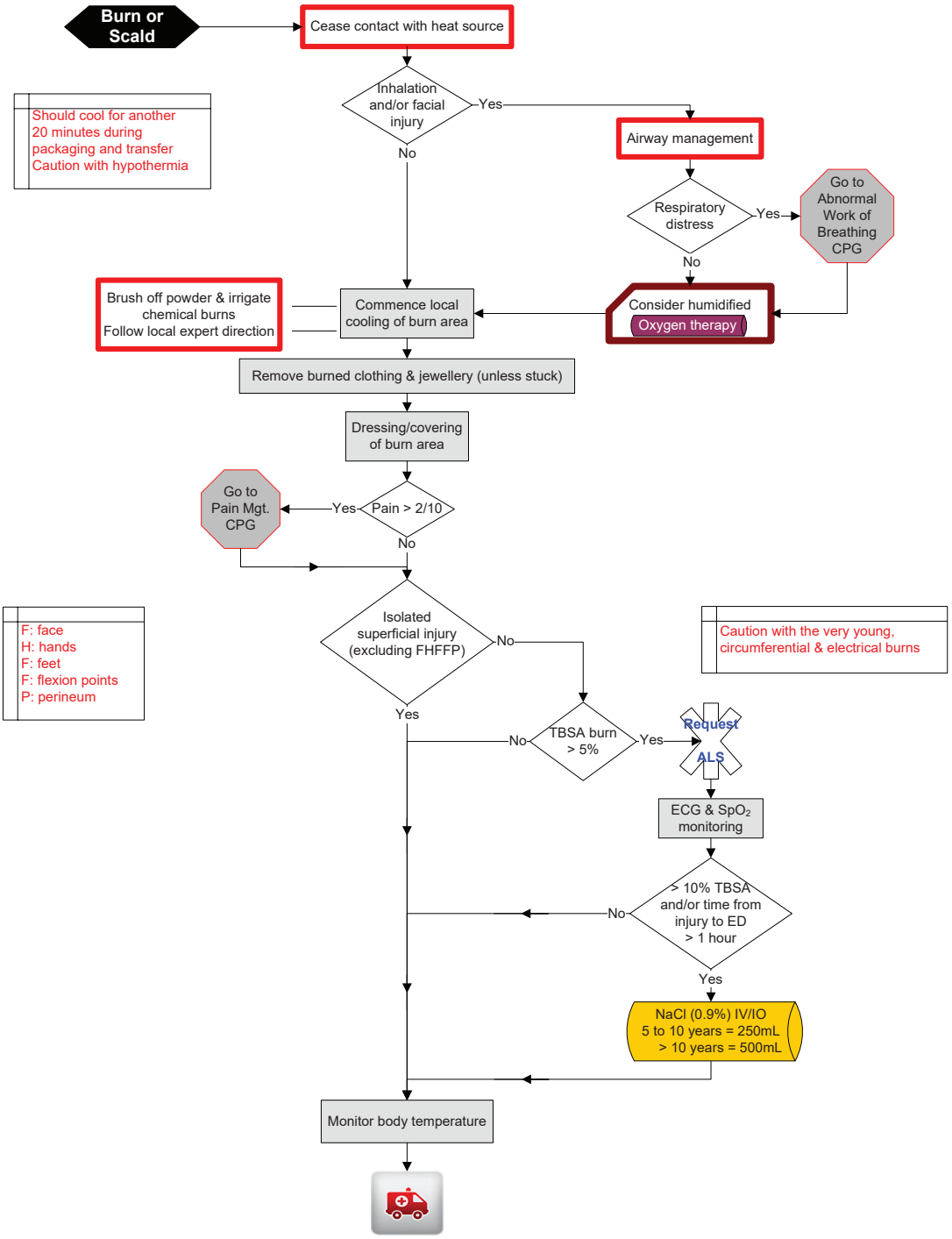
P AP



Burns – Paediatric

4/5/6.13.15
Version 4, 01/2021

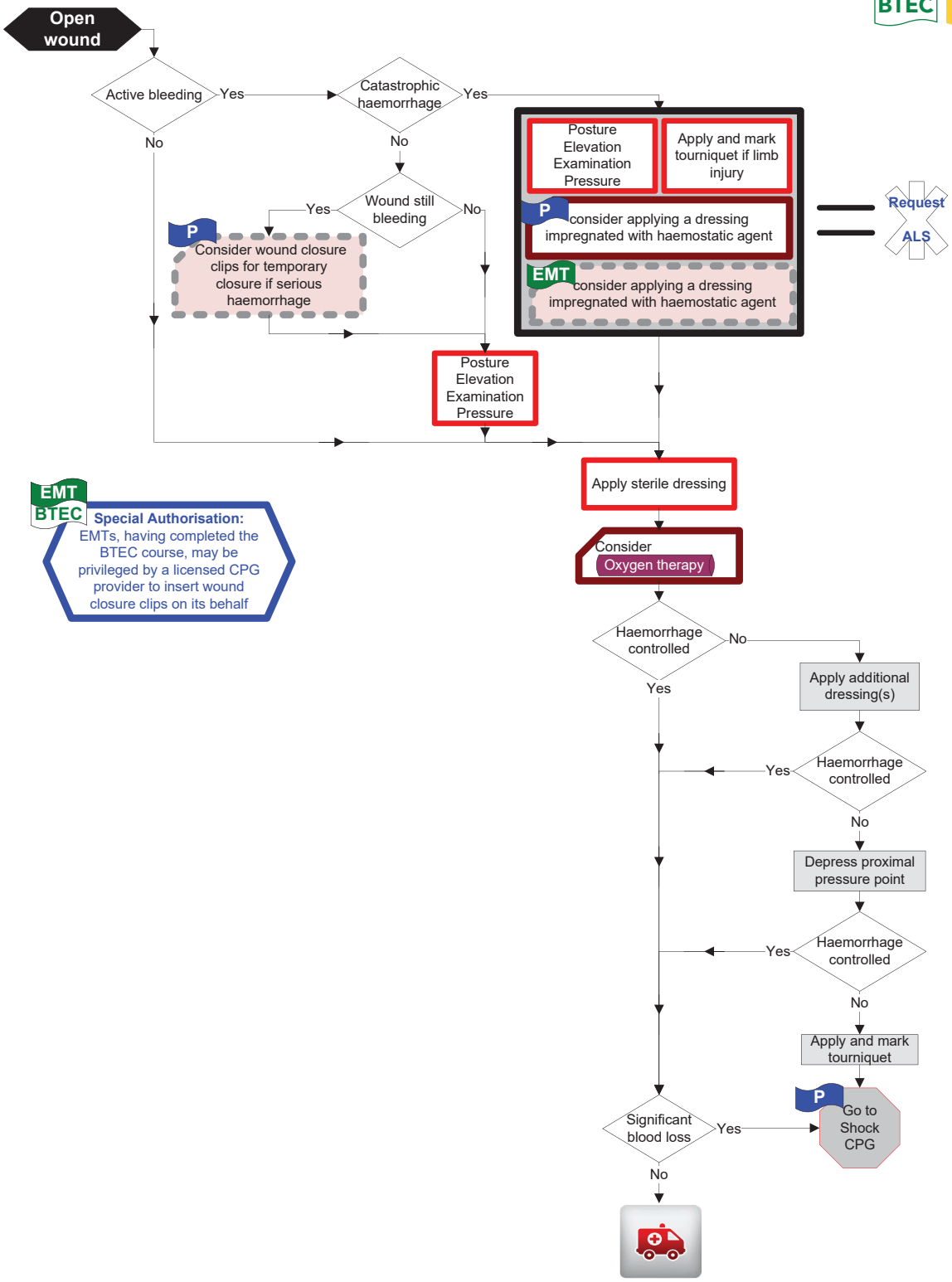
EMT P AP



External Haemorrhage – Paediatric

4/5/6.13.16
Version 5, 01/2021

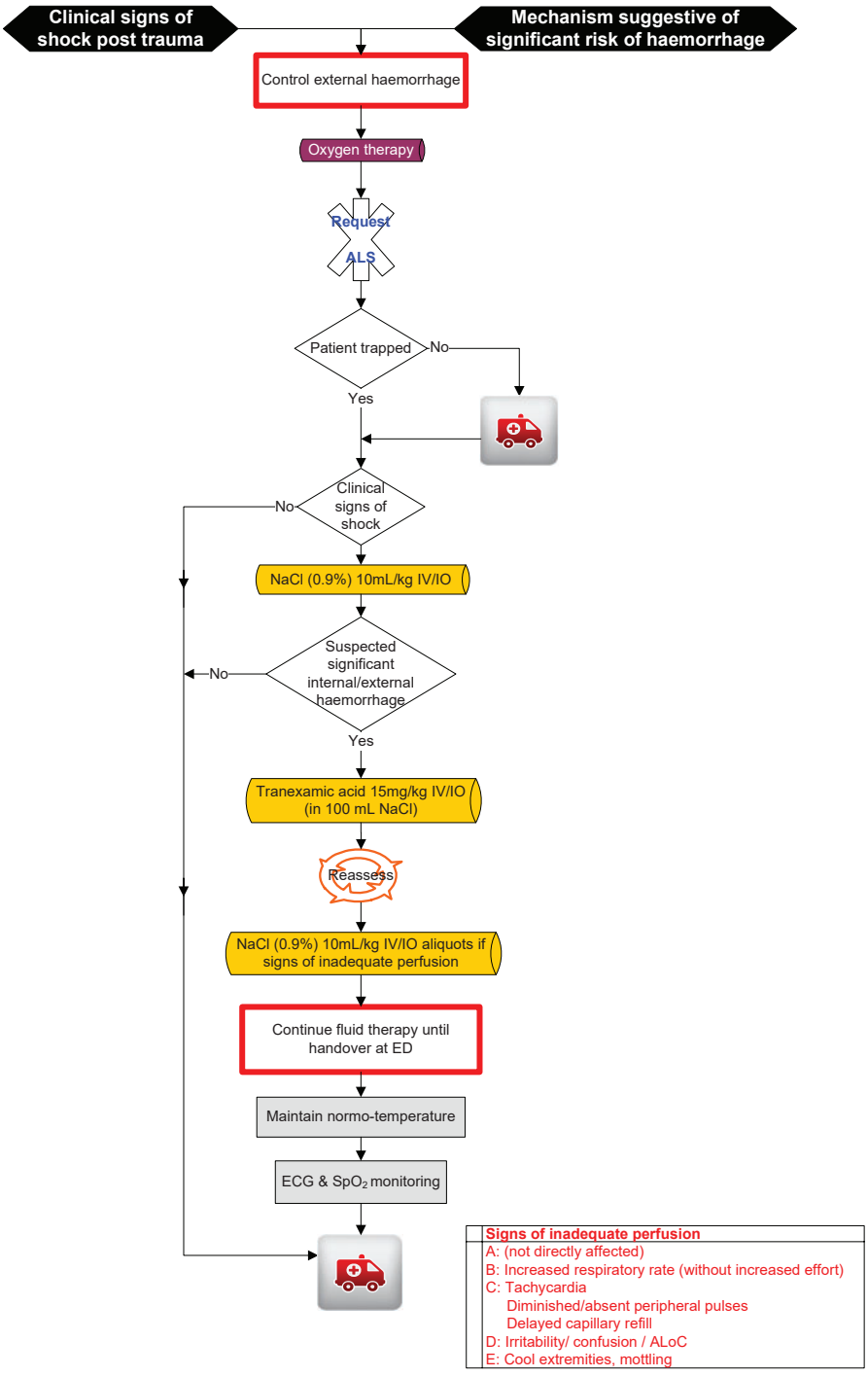
EMT P
BTEC AP



Actual/Potential Shock from Blood Loss (trauma) – Paediatric

5/6.13.17
Version 1, 04/2021

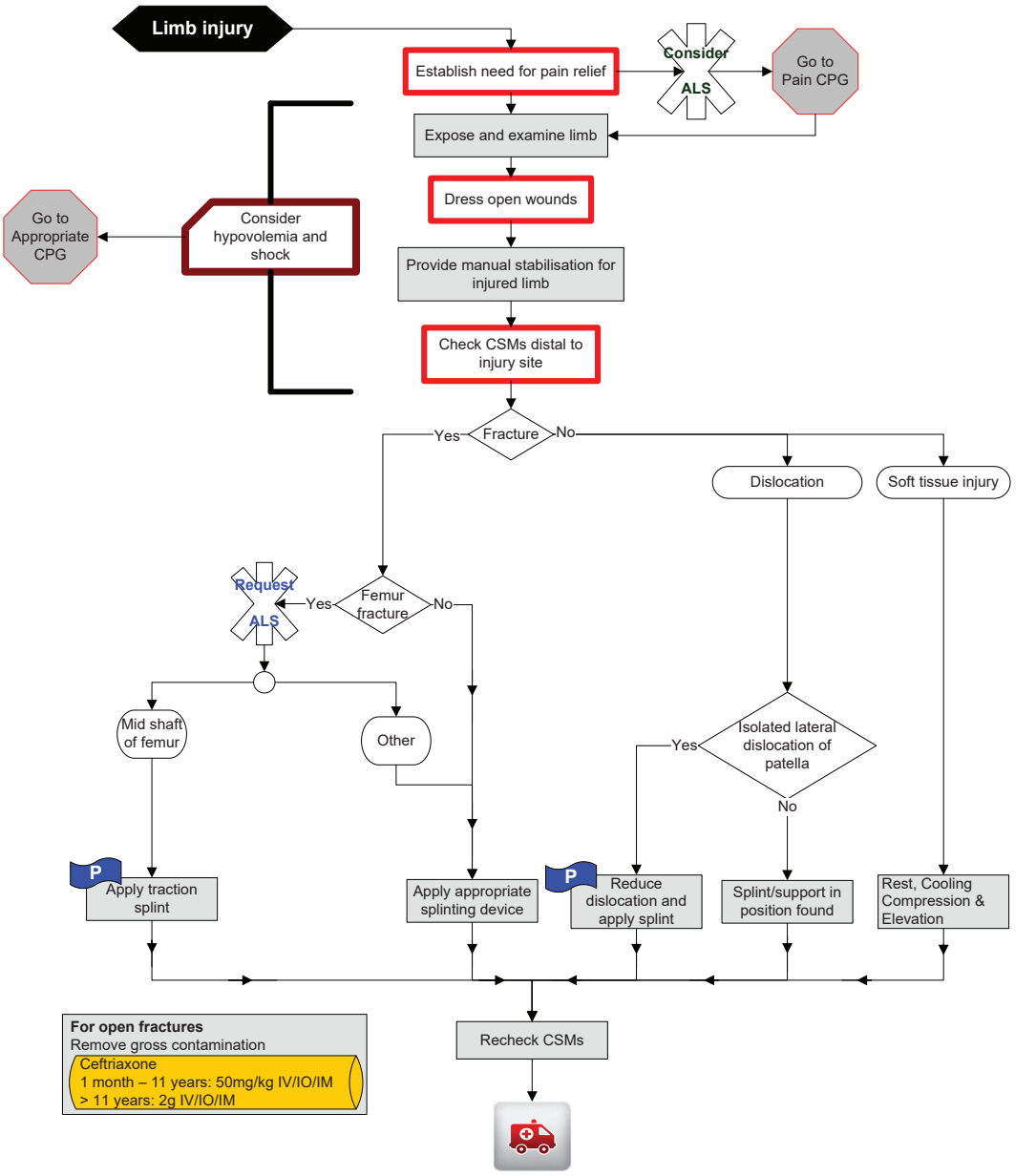
P AP



Limb Injury – Paediatric

4/5/6.13.18
Version 1, 04/2021

EMT P AP

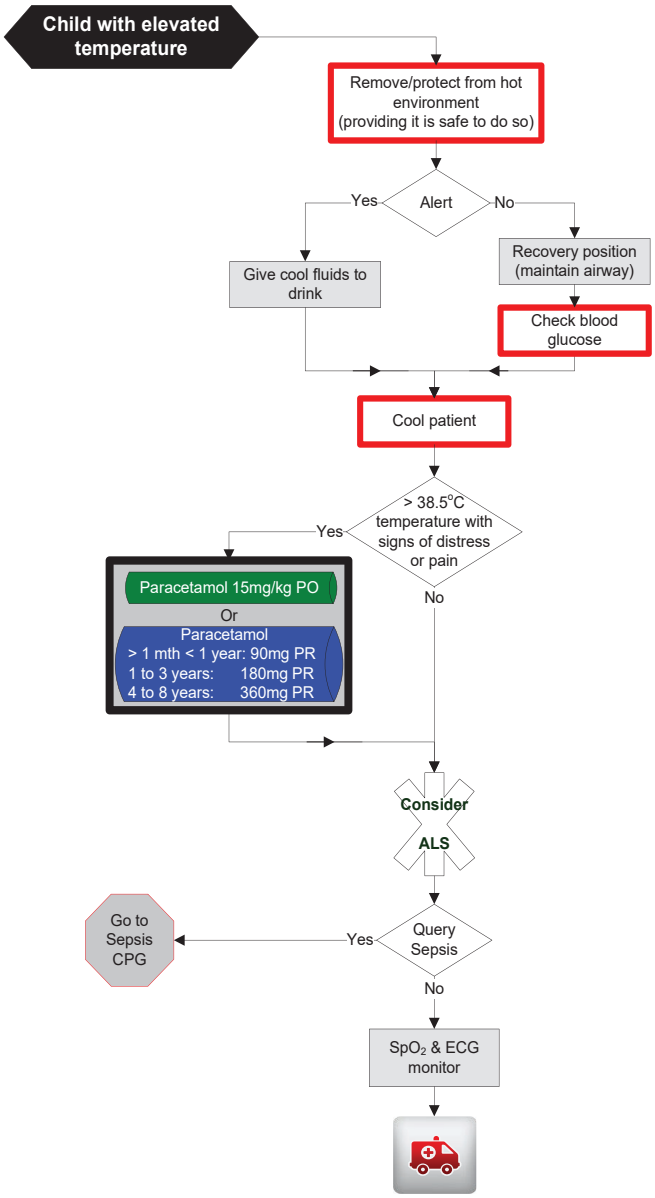


For a limb threatening injury treat as an emergency and pre-alert ED

Pyrexia – Paediatric

4/5/6.13.19
Version 4, 10/2022

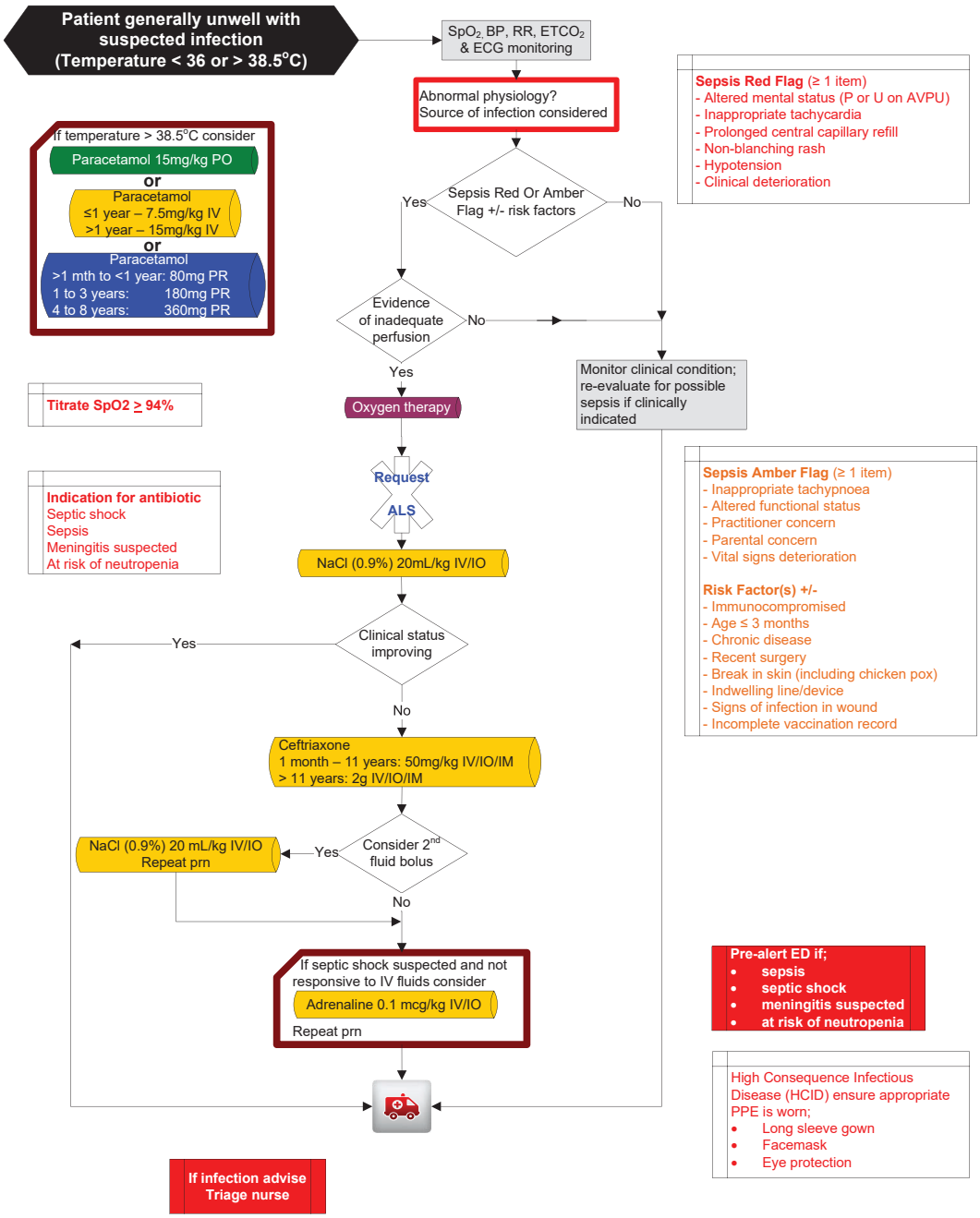
EMT P AP



Sepsis – Paediatric

4/5/6.13.20
Version 6, 10/2022

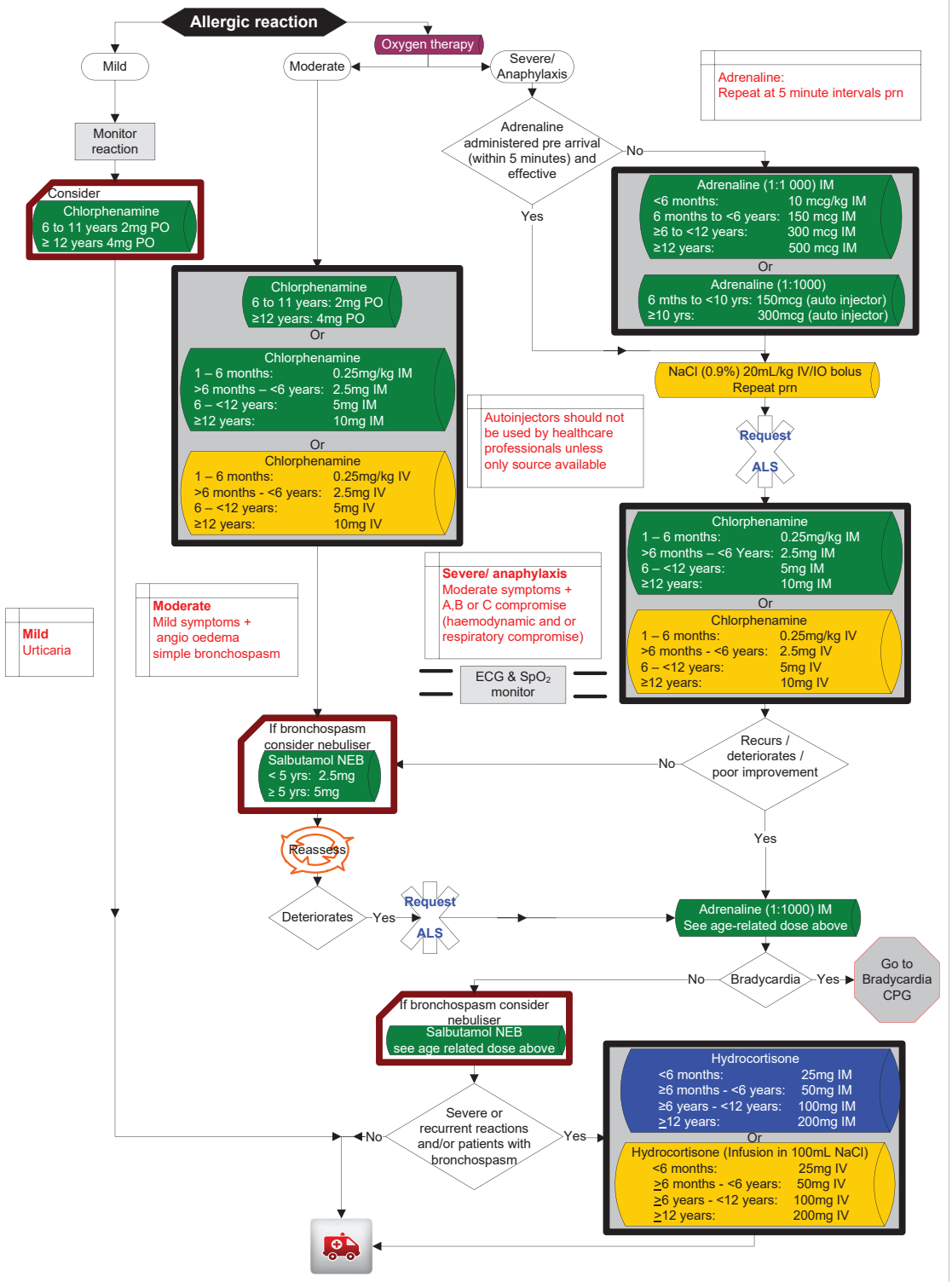
EMT P AP



Allergic Reaction/Anaphylaxis – Paediatric

4/5/6.13.21
Version 6, 11/2022

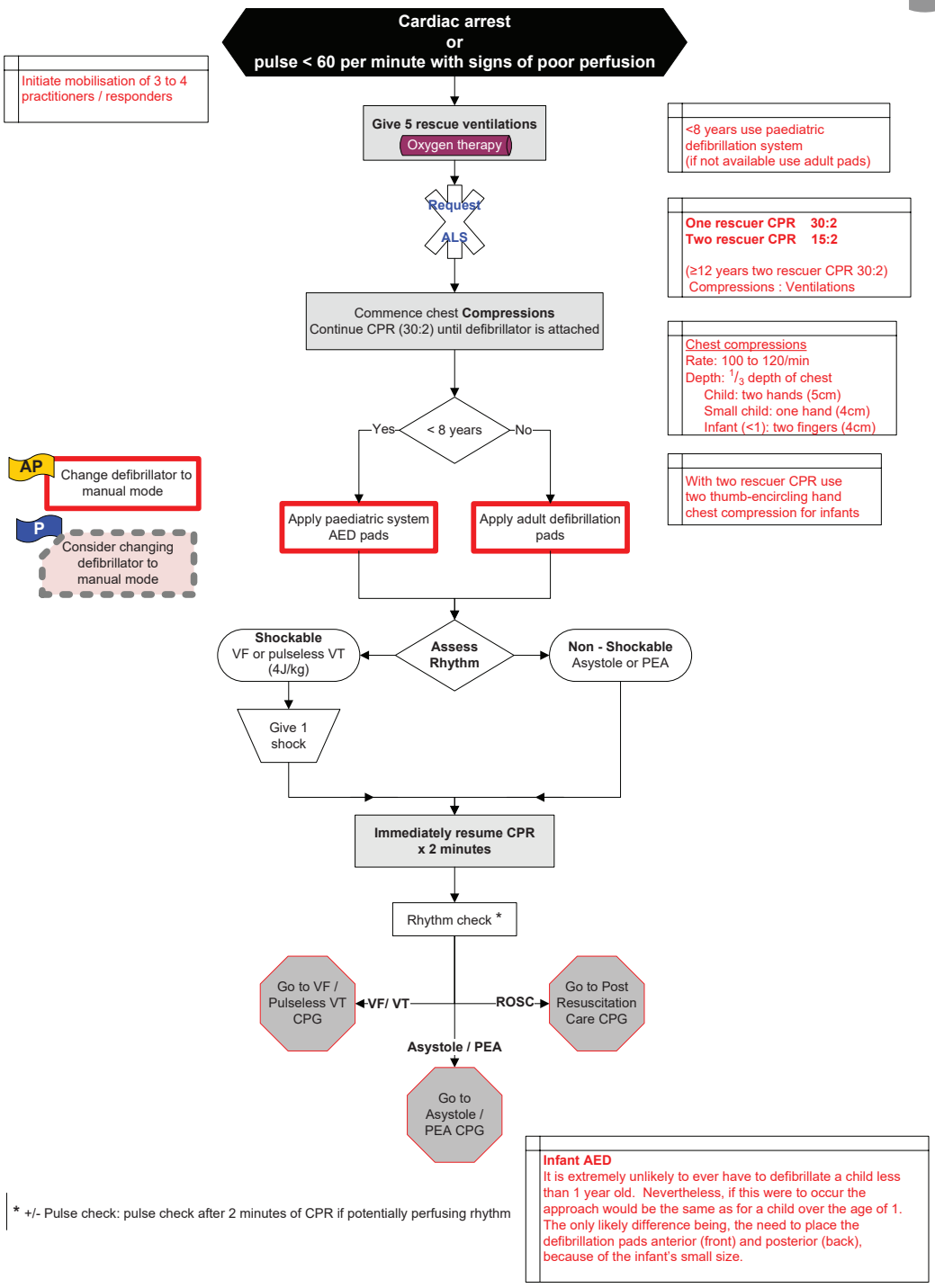
EMT P AP



Basic Life Support – Paediatric

4/5/6.13.22
Version 5, 02/2021

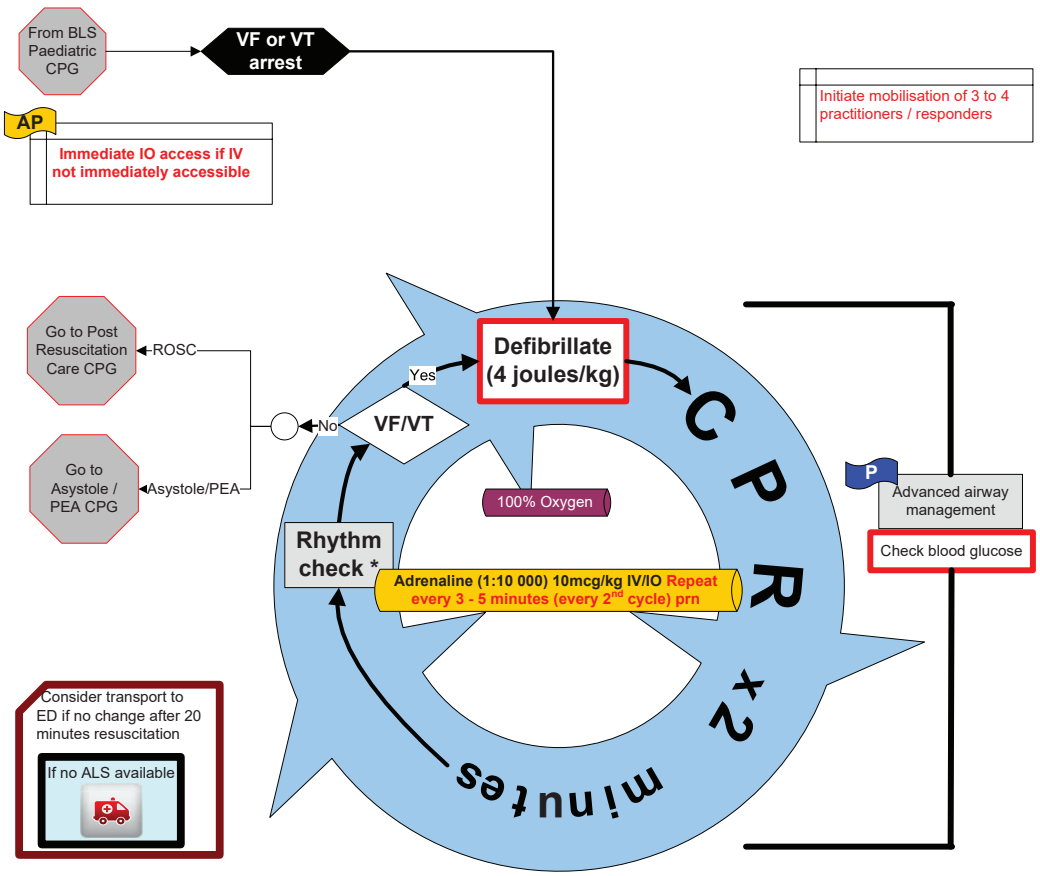
EMT P CFR-A AP



VF or pVT – Paediatric

4/5/6.13.23
Version 6, 01/2021

EMT P AP



Defibrillation:
< 8 years use paediatric defibrillation system
(if not available use adult pads)

If refractory VF/pVT post Adrenaline and 3rd shock
Amiodarone 5mg/kg IV/IO

AP
Special Authorisation:
Advanced Paramedics are authorised to substitute Amiodarone with a one off bolus of Lidocaine (1-1.5mg/kg IV) if Amiodarone is not available

Consider causes and treat as appropriate:

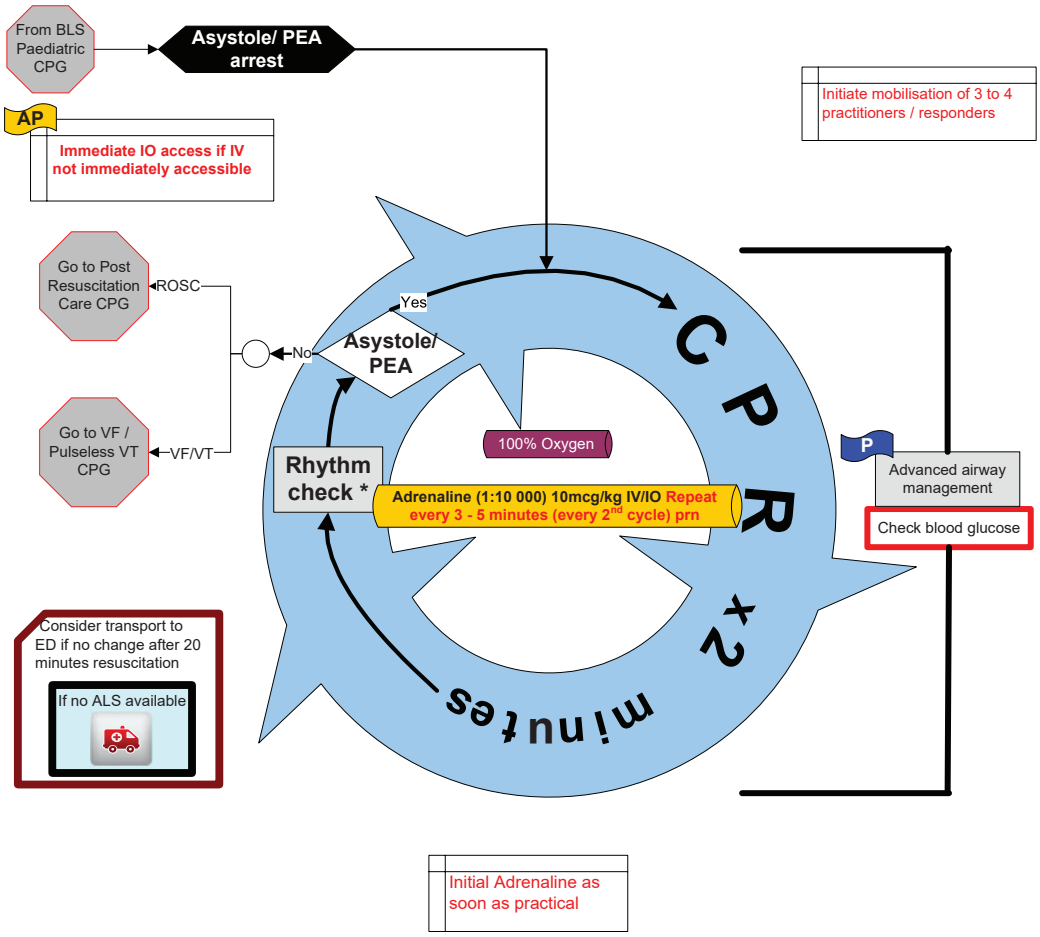
- Hydrogen ion acidosis
- Hyper/ hypokalaemia
- **Hypothermia**
- **Hypovolaemia**
- **Hypoxia**
- Thrombosis – pulmonary
- **Tension pneumothorax**
- Thrombus – coronary
- Tamponade – cardiac
- Toxins
- Trauma

* +/- Pulse check: pulse check after 2 minutes of CPR if potentially perfusing rhythm

Asystole/PEA – Paediatric

4/5/6.13.24
Version 5, 01/2021

EMT P AP



Consider causes and treat as appropriate:

- Hydrogen ion acidosis
- Hyper/ hypokalaemia
- **Hypothermia**
- **Hypovolaemia**
- **Hypoxia**
- Thrombosis – pulmonary
- **Tension pneumothorax**
- Thrombus – coronary
- Tamponade – cardiac
- Toxins
- Trauma

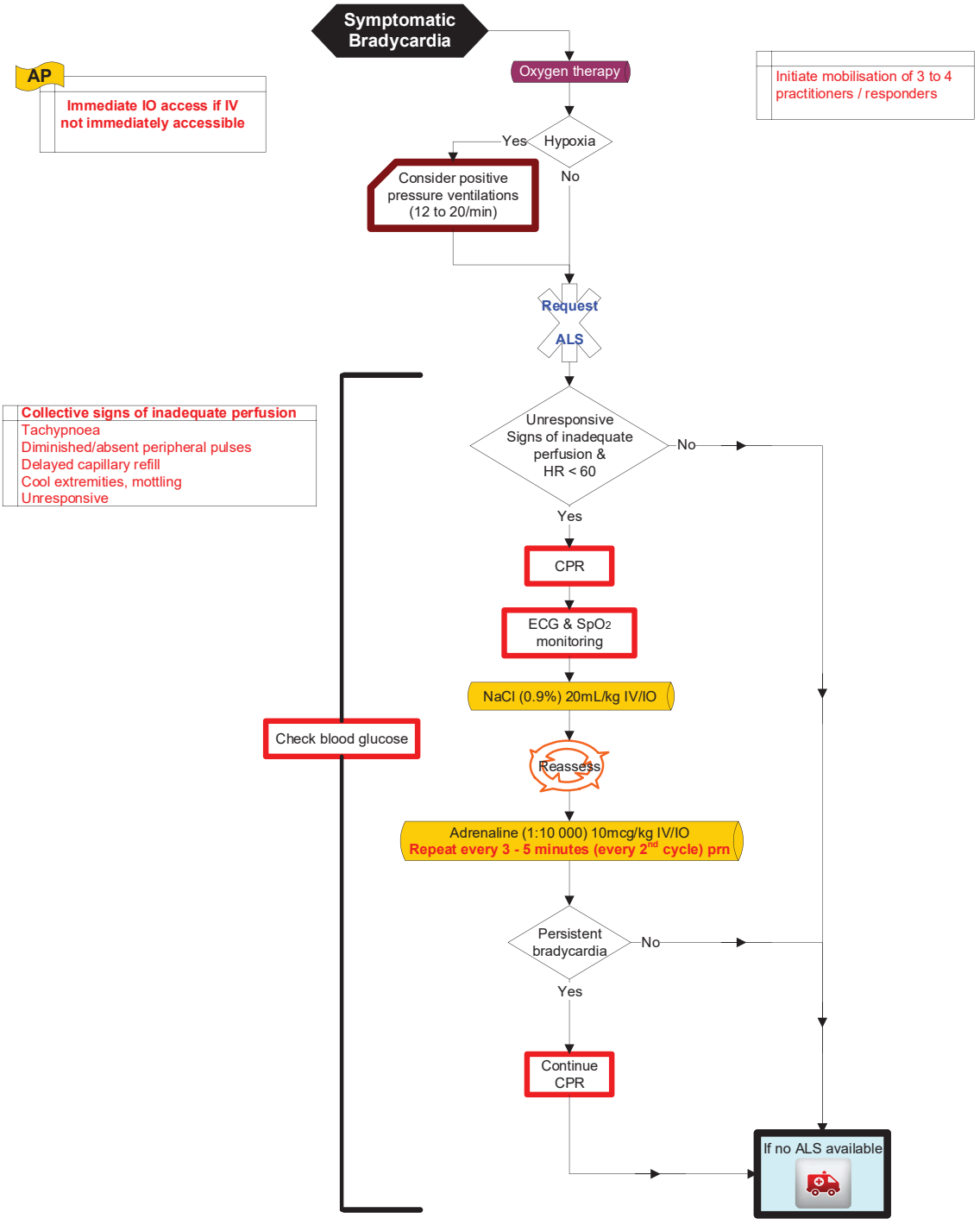
Consider fluid challenge
NaCl (0.9%) 20mL/kg IV/IO

* +/- Pulse check: pulse check after 2 minutes of CPR if potentially perfusing rhythm

Symptomatic Bradycardia – Paediatric

4/5/6.13.25
Version 5, 01/2021

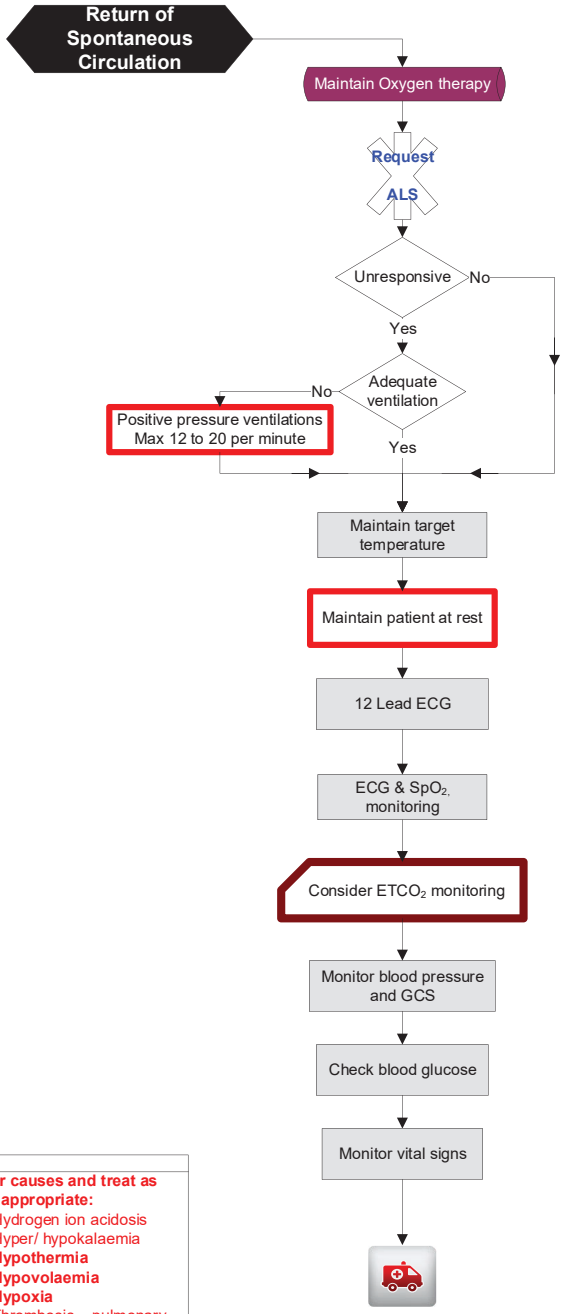
EMT P AP



Post-Resuscitation Care – Paediatric

5/6.13.26
Version 5, 01/2021

P AP



Initiate mobilisation of 3 to 4 practitioners / responders

Consider causes and treat as appropriate:

- Hydrogen ion acidosis
- Hyper/ hypokalaemia
- **Hypothermia**
- **Hypovolaemia**
- **Hypoxia**
- Thrombosis – pulmonary
- **Tension pneumothorax**
- Thrombus – coronary
- Tamponade – cardiac
- Toxins
- Trauma

If persistent poor perfusion or < 5th percentile Sys BP consider

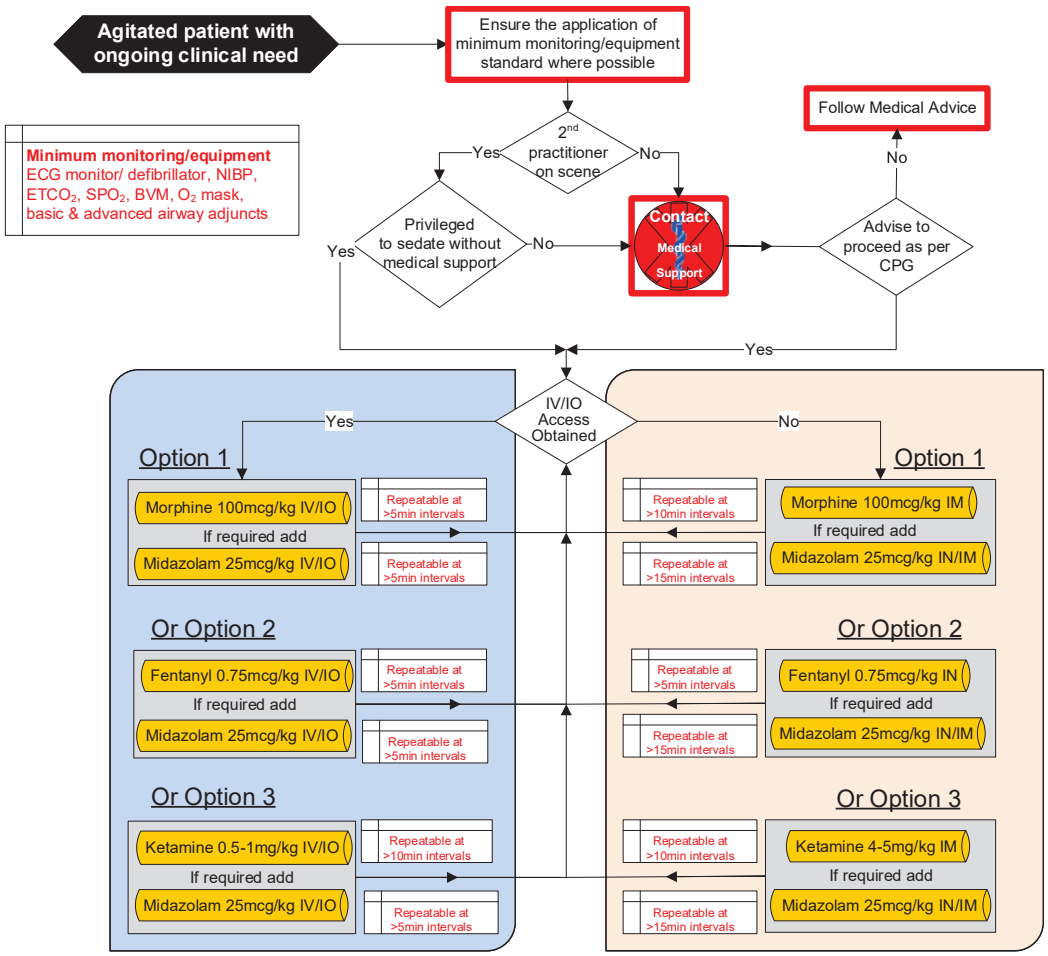
NaCl (0.9%) 20mL/kg IV/IO

5th percentile systolic BP = 70 mmHg + (2 x age)

Procedural Sedation/Analgesia - Paediatric

6.13.27
Version 1, 03/2021

AP



Option 1: Most suitable for longer journeys in patients with normal to high blood pressures

Option 2: Most suitable for shorter journeys or patients post ROSC with normal to low blood pressures

Option 3: Most suitable for patients being transported by Aeromedical/ Specialist Services

Sedation Assessment Tool

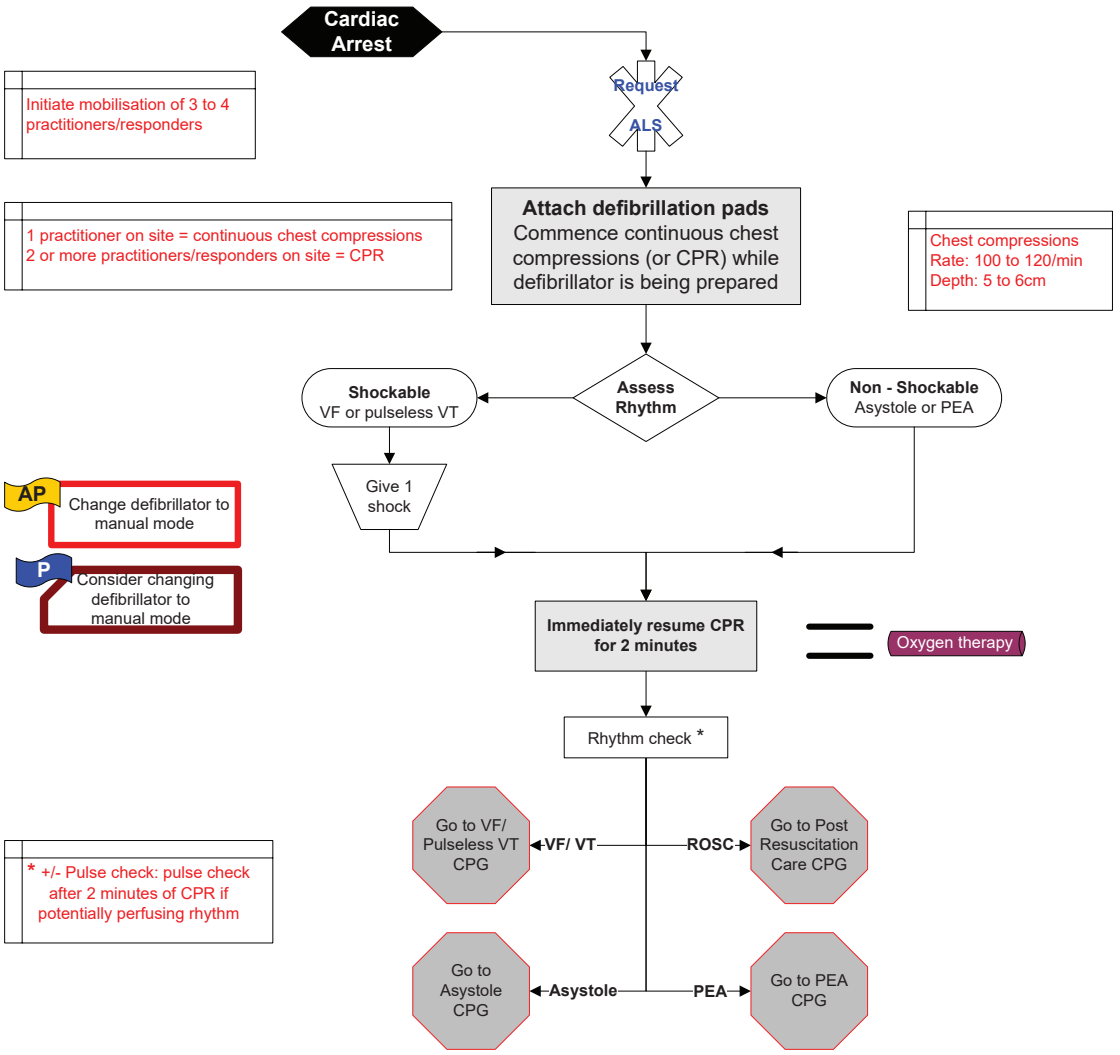
Score	Term	Description
+4	Combative	Overtly combative or violent; immediate danger to staff
+3	Very agitated	Pulls on or removes tube or catheters or has aggressive behaviour towards staff
+2	Agitated	Frequent non purposeful movement
+1	Restless	Anxious or apprehensive but movements not aggressive or vigourous
0	Alert and calm	
-1	Drowsy	Not fully alert, but has sustained (> 10 sec) awakening, with eye contact, to voice
-2	Light sedation	Briefly (<10 sec) awakens with eye contact to voice
-3	Moderate sedation	Any movement (but no eye contact) to voice
-4	Deep sedation	No response to voice, but any movement to physical stimulation
-5	Unarousable	No response to voice or physical stimulation

The Richmond Agitation-Sedation Scale (RASS)

Basic Life Support – Adult

4/5/6.14.1
Version 4, 02/2021

EMT P AP



Ventilations
Volume: 500 to 600 mL

Minimum interruptions of chest compressions

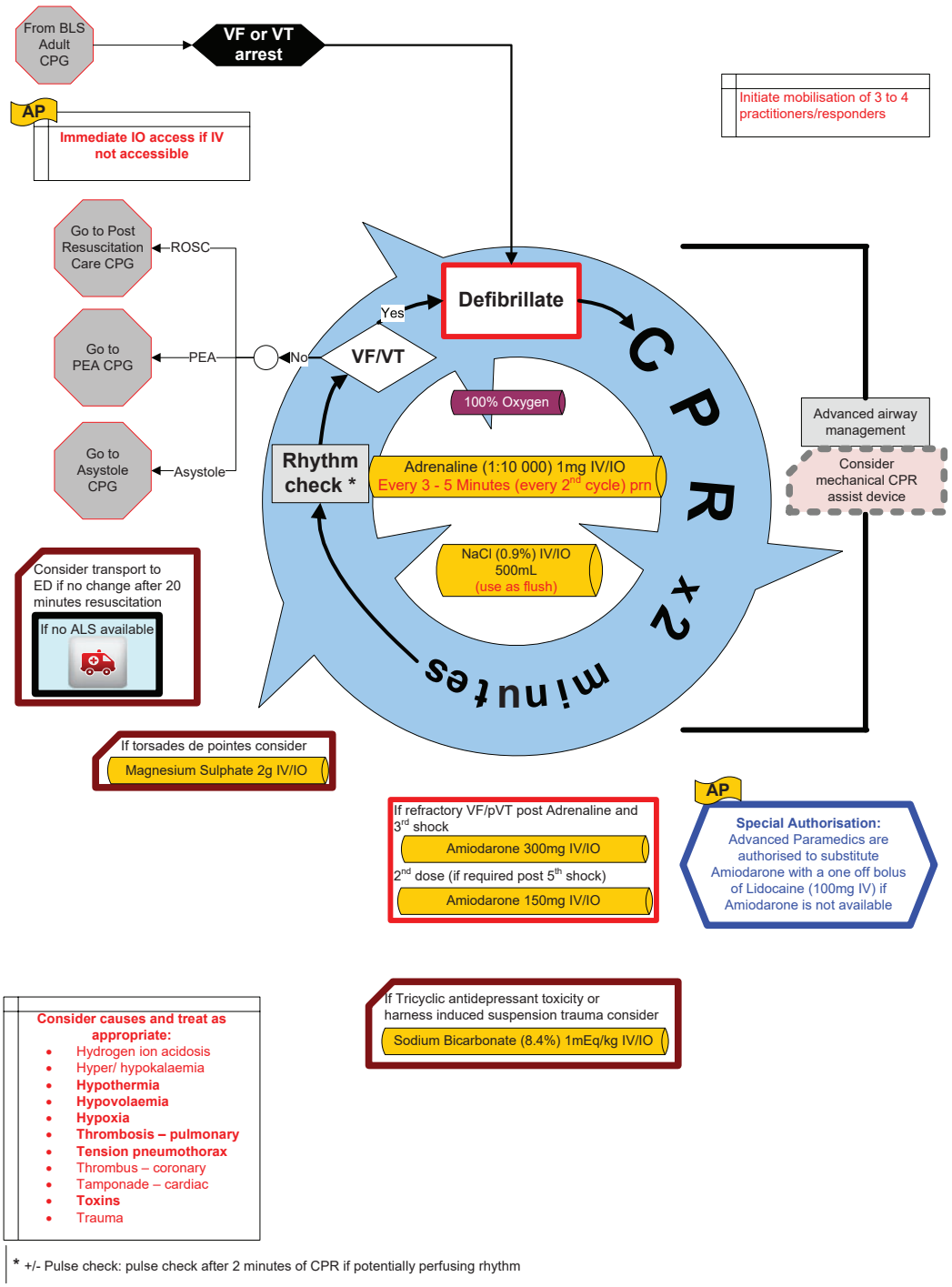
Maximum hands off time 10 seconds

If an Implantable Cardioverter Defibrillator (ICD) is fitted in the patient treat as per CPG. It is safe to touch a patient with an ICD fitted even if it is firing

VF or pVT – Adult

4/5/6.14.2
Version 5, 01/2021

EMT P AP

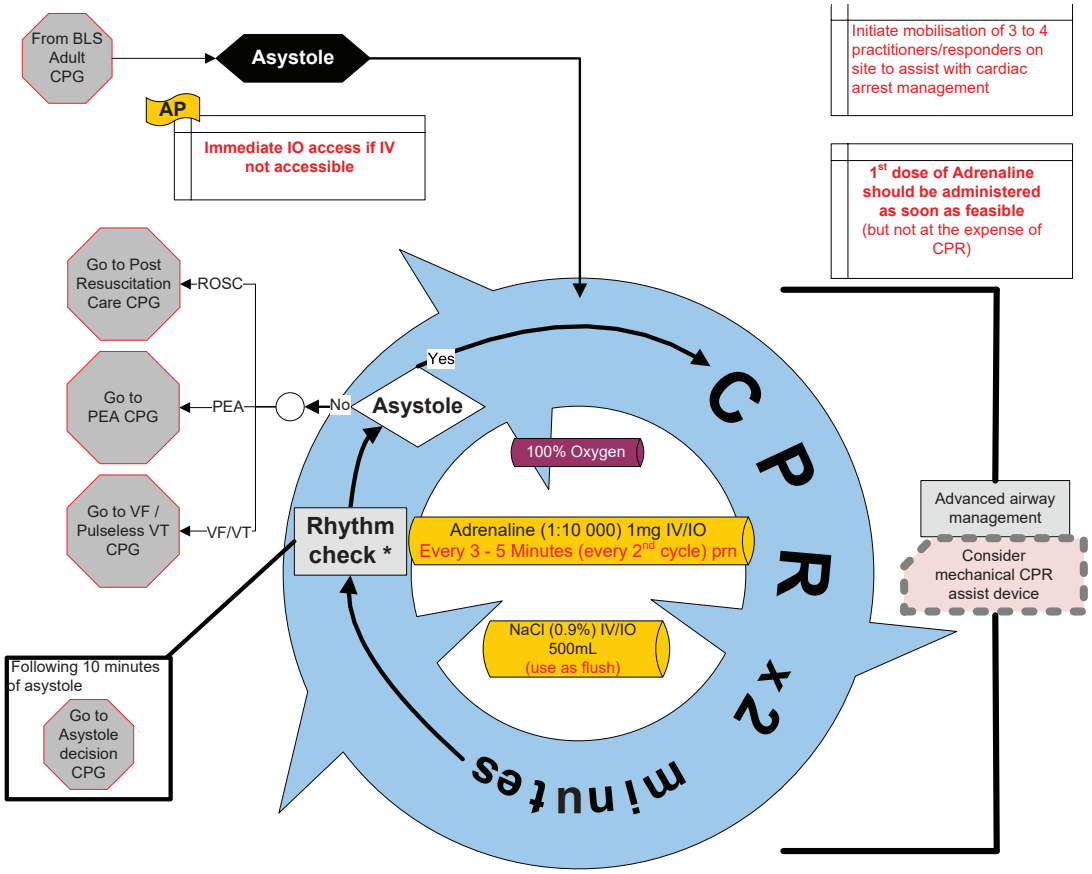


* +/- Pulse check: pulse check after 2 minutes of CPR if potentially perfusing rhythm

Asystole – Adult

4.14.3
Version 4, 12/2020

P AP



Consider causes and treat as appropriate:

- Hydrogen ion acidosis
- Hyper/ hypokalaemia
- **Hypothermia**
- **Hypovolaemia**
- **Hypoxia**
- **Thrombosis – pulmonary**
- **Tension pneumothorax**
- Thrombus – coronary
- Tamponade – cardiac
- **Toxins**
- Trauma

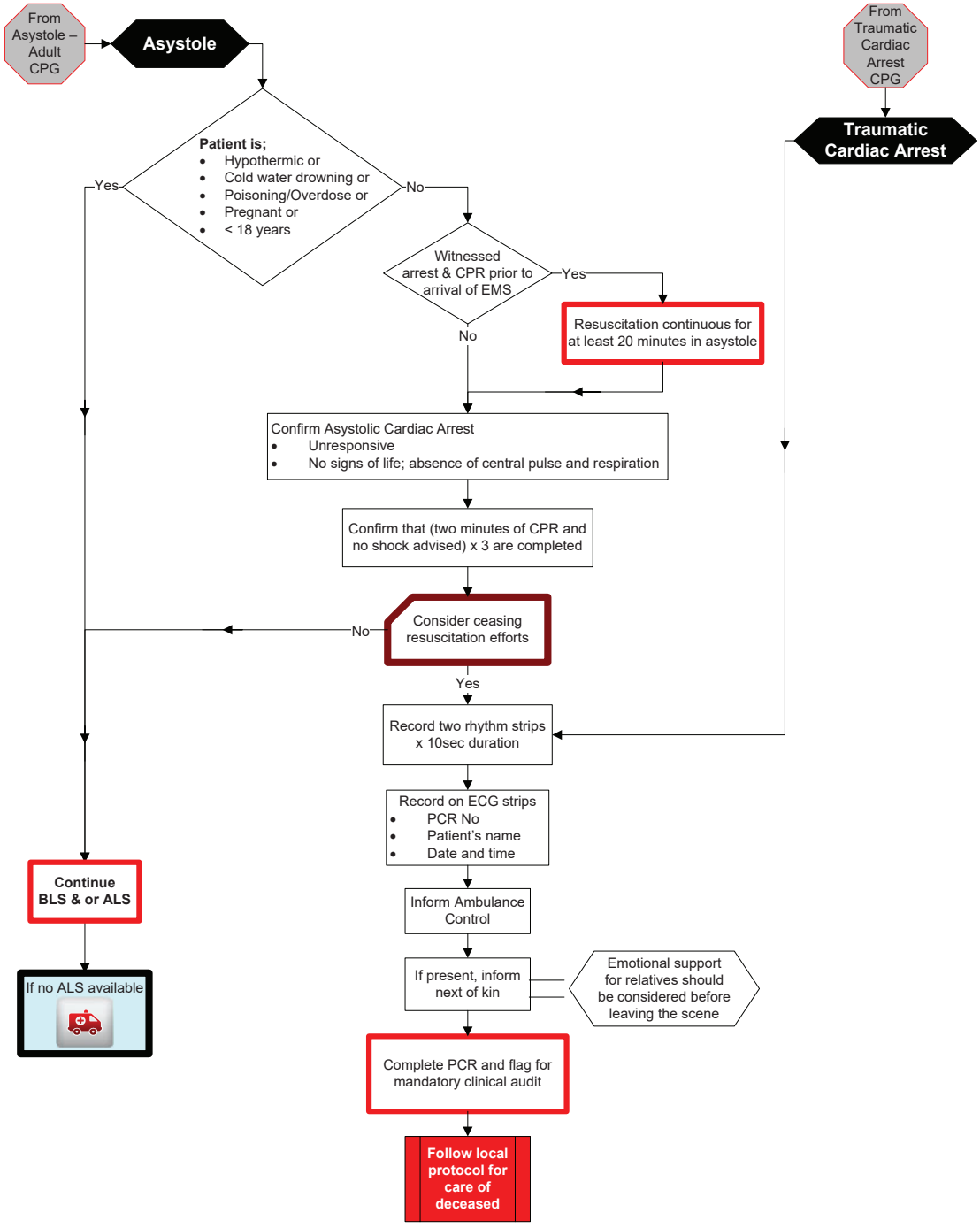
Consider fluid challenge
NaCl (0.9%) 1L IV/IO
Repeat prn

If Tricyclic antidepressant toxicity or harness induced suspension trauma consider
Sodium Bicarbonate (8.4%) 1mEq/kg IV/IO

Asystole - Decision Tree

5/6.14.4
Version 2, 01/2021

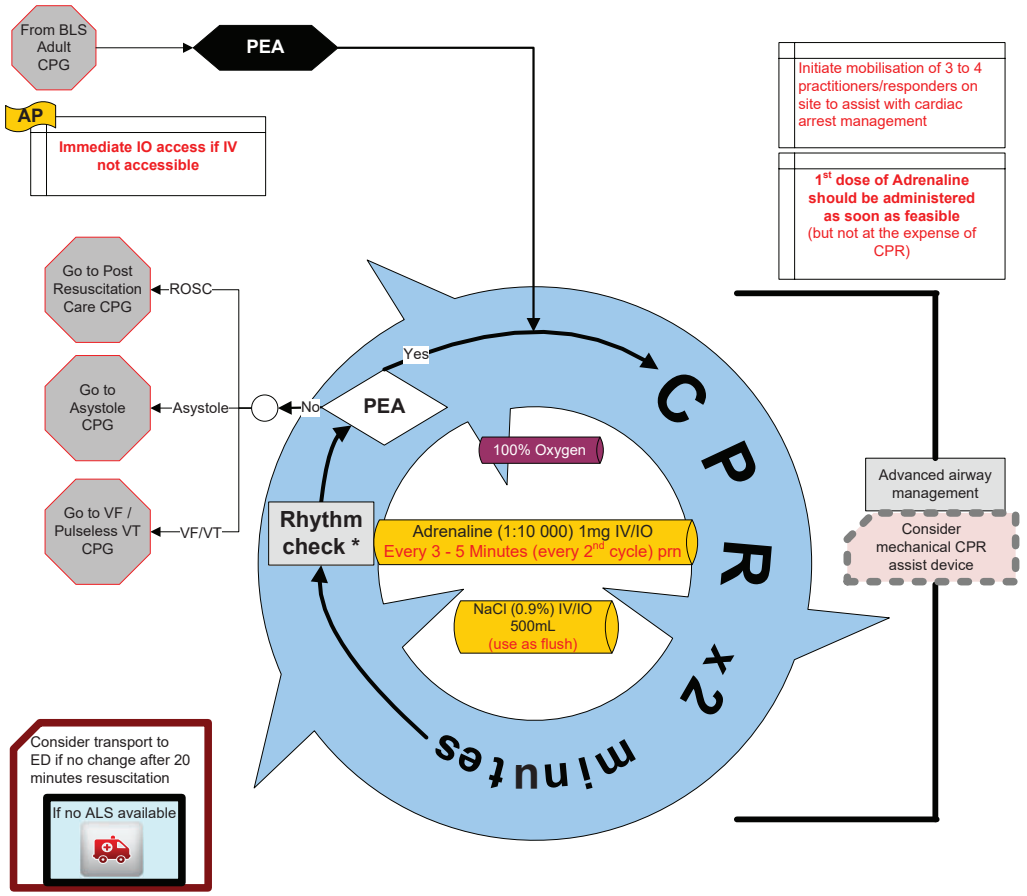
P AP



Pulseless Electrical Activity – Adult

4/5/6.14.5
Version 4, 01/2021

EMT P AP



Consider causes and treat as appropriate:

- Hydrogen ion acidosis
- Hyper/ hypokalaemia
- **Hypothermia**
- **Hypovolaemia**
- **Hypoxia**
- **Thrombosis – pulmonary**
- **Tension pneumothorax**
- Thrombus – coronary
- Tamponade – cardiac
- **Toxins**
- Trauma

Consider fluid challenge
NaCl (0.9%) 1L IV/IO
Repeat prn

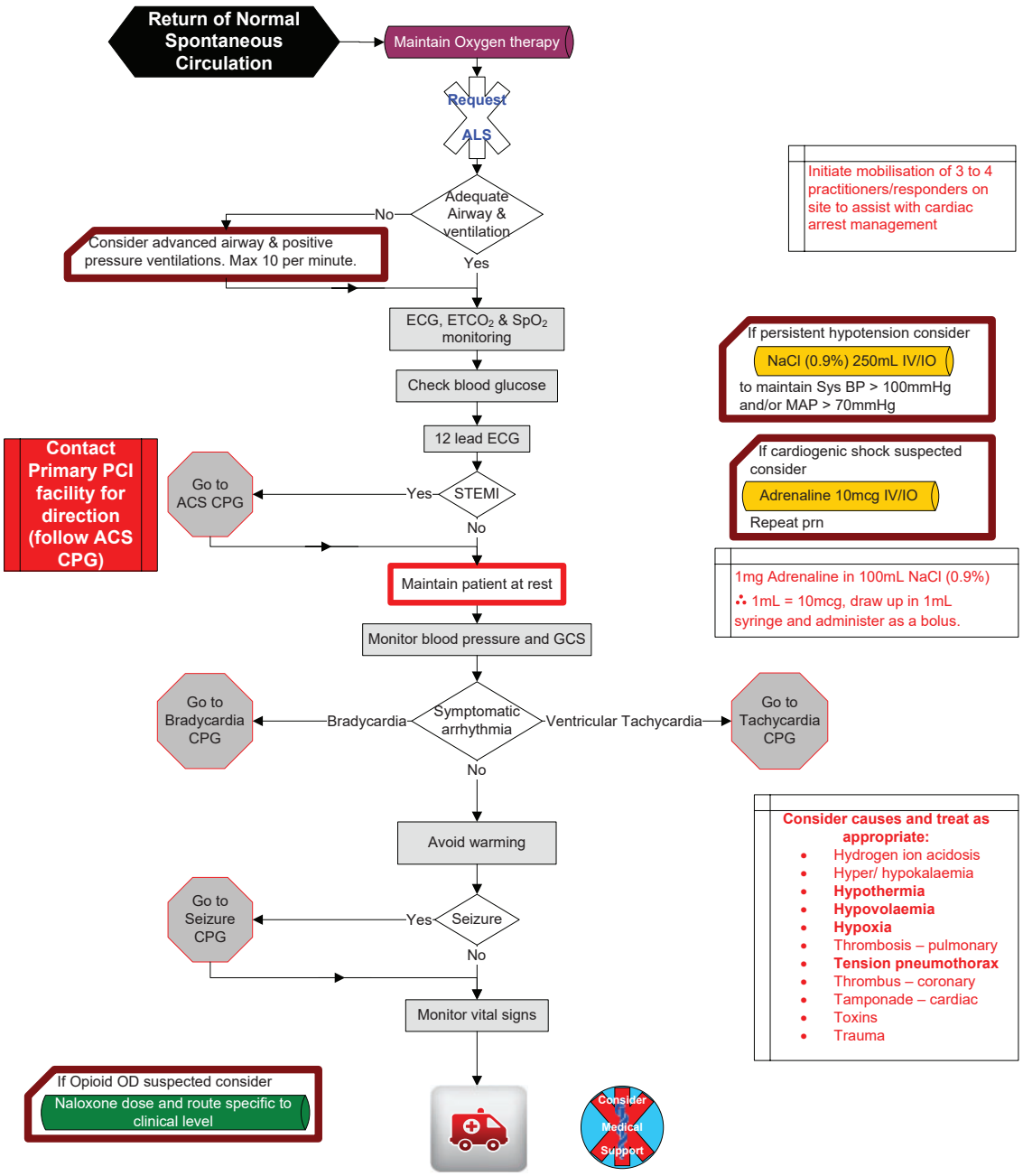
If Tricyclic antidepressant toxicity or harness induced suspension trauma consider
Sodium Bicarbonate (8.4%) 1mEq/kg IV/IO

* +/- Pulse check: pulse check after 2 minutes of CPR if potentially perfusing rhythm

Post-Resuscitation Care – Adult

5/6.14.6
Version 5, 03/2021

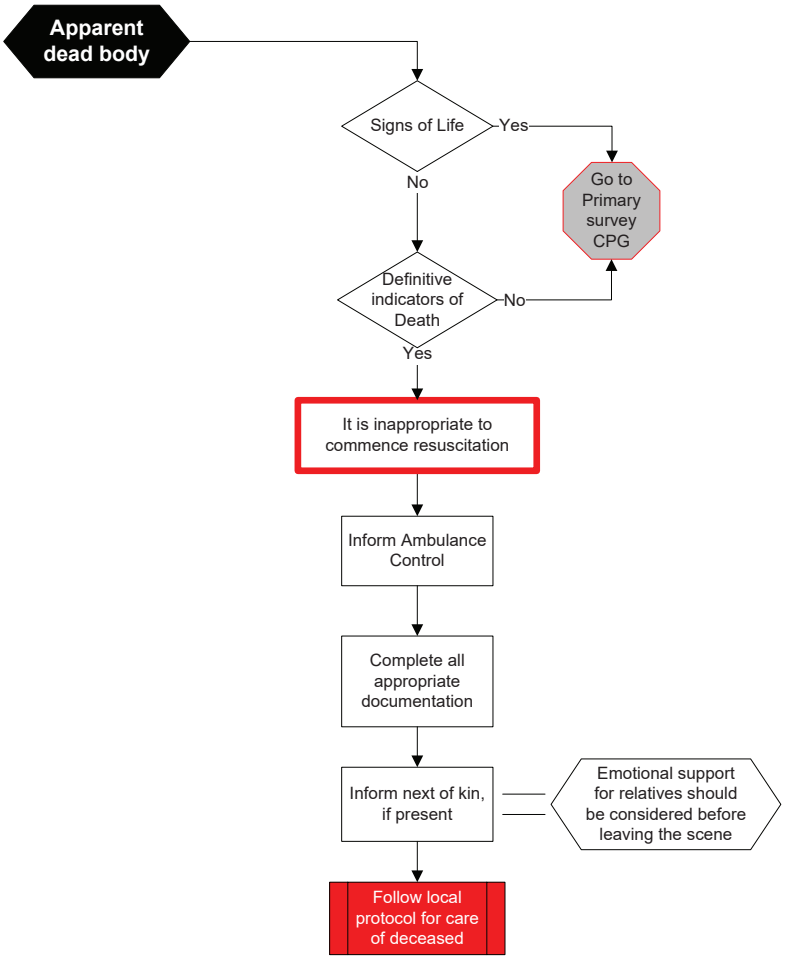
P AP



Recognition of Death – Resuscitation not Indicated

5/6.14.7
Version 3, 01/2021

P AP



	Definitive indicators of death:
	1. Decomposition
	2. Obvious rigor mortis
	3. Obvious pooling (hypostasis)
	4. Incineration
	5. Decapitation
	6. Injuries totally incompatible with life
	7. Unwitnessed traumatic cardiac arrest following blunt trauma (see CPG 5/6.8.10)

Team Resuscitation

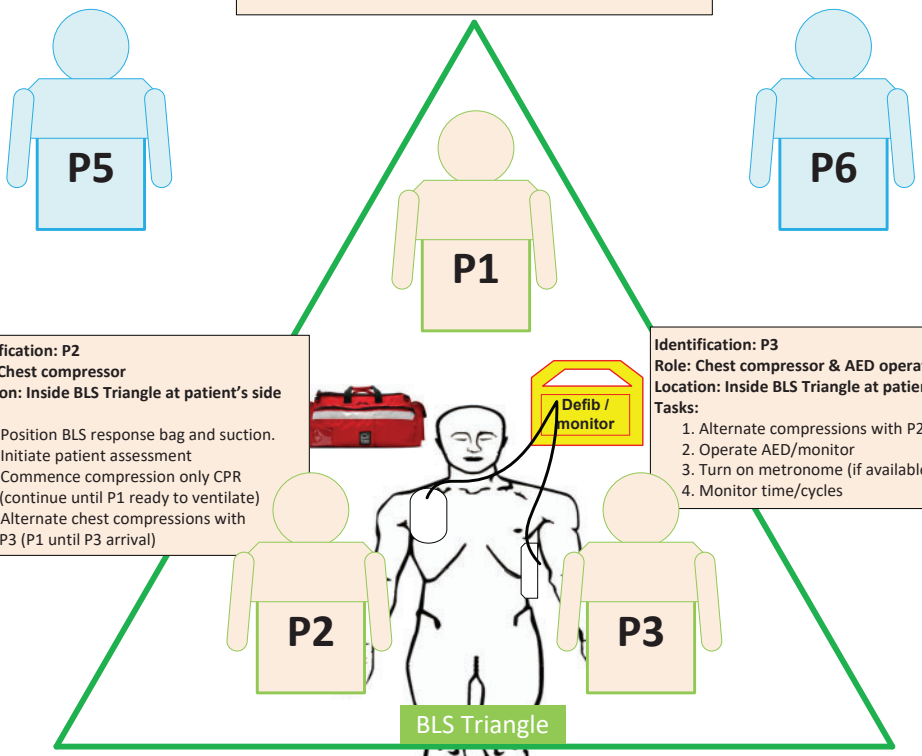
4/5/6.14.8
Version 2, 03/2021

EMT P CFR-A AP

Identification: P5
Role: Family & Team Support
Position: Outside the BLS triangle
1. Family Liaison
2. Patient Hx/meds
3. Manage Equipment
4. Plan removal (if transporting)

Identification: P1
Role: Airway and ventilatory support & initial team leader
Location: Inside BLS Triangle at patient's head
Tasks:
1. Position defibrillator
2. Attach defib pads and operate defibrillator (If awaiting arrival of P3)
3. Basic airway management (manoeuvre, suction & adjunct)
4. Assemble ventilation equipment and ventilate
5. Team leader (until P4 assigned)

Identification: P6
Role: Team Support
Location: Outside BLS Triangle
Tasks:
1. Support P1 with airway and ventilation
2. Support P2/P3 with chest compressions and defibrillation
3. Documentation
4. Support tasks assigned by P4



Identification: P2
Role: Chest compressor
Location: Inside BLS Triangle at patient's side
Tasks:
1. Position BLS response bag and suction.
2. Initiate patient assessment
3. Commence compression only CPR (continue until P1 ready to ventilate)
4. Alternate chest compressions with P3 (P1 until P3 arrival)

Identification: P3
Role: Chest compressor & AED operator
Location: Inside BLS Triangle at patient's side
Tasks:
1. Alternate compressions with P2
2. Operate AED/monitor
3. Turn on metronome (if available)
4. Monitor time/cycles

Identification: P4
Role: Cardiac Arrest Team Leader
Location: Outside the BLS Triangle (ideally at the patient's feet with a clear view of the patient, team and Monitor)
Tasks:
1. Positive exchange of Team Leader
2. Position ALS bag (AP)
3. Take Handover from P1
4. Monitor BLS quality
5. Initiate IV/IO access & administers medications (AP)
6. Intubate if clinically warranted (AP)
7. Communicate with family/Family Liaison
8. Identify and treat reversible causes (H's + T's)
9. Provide clinical leadership
10. Conduct post event debrief

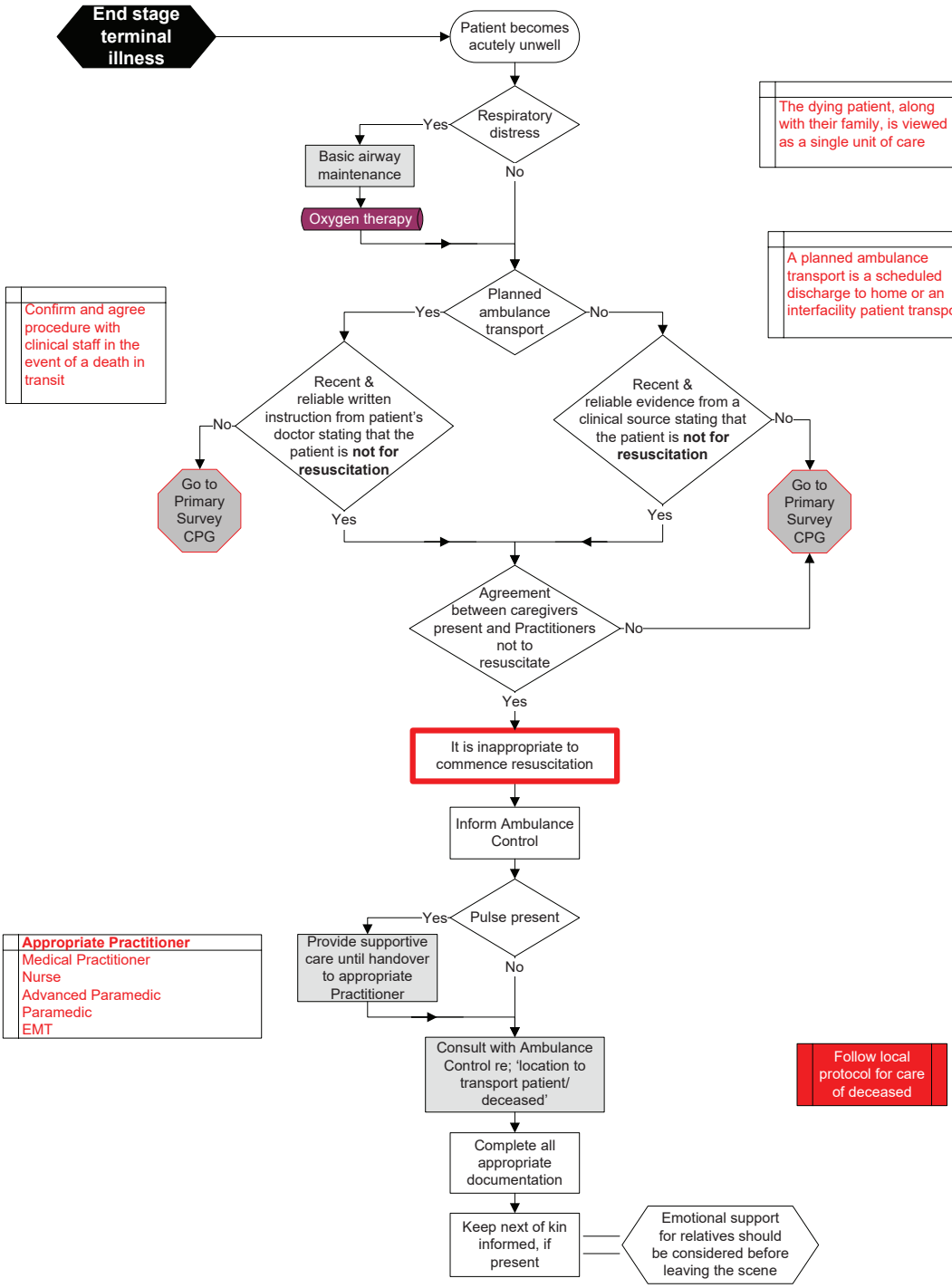
Positions and roles are as laid out, however a practitioner may change position thus taking on the role of that position.

If ALS are first on scene they perform BLS until sufficient BLS personnel are on scene

End of Life – DNAR

5/6.15.1
Version 2, 01/2021

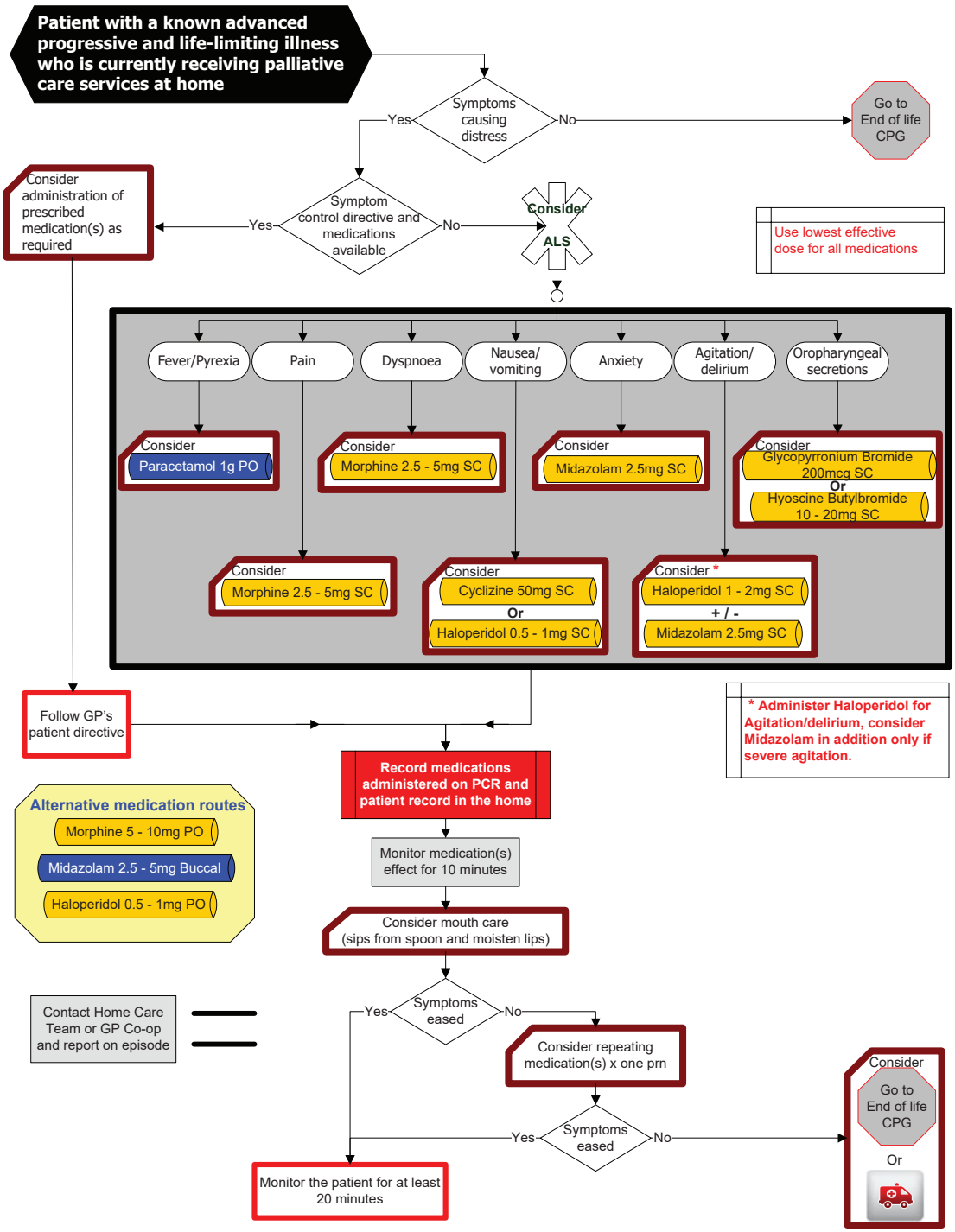
P AP



Palliative Care – Adult

5/6.15.2
Version 2, 01/2021

P AP



Major Emergency (Major Incident) – First Practitioners on site

4/5/6.16.1
Version 3, 12/2020

EMT P AP

Irish (Major Emergency) terminology in black
UK (Major Incident) terminology in blue

Possible Major Emergency

Take standard infection control precautions

Consider pre-arrival information

PPE (high visibility jacket and helmet) must be worn

Practitioner 1

Park at the scene as safety permits and in conjunction with Fire & Garda if present

Leave blue lights on as vehicle acts as Forward Control Point pending the arrival of the Mobile Control Vehicle

Confirm arrival at scene with Ambulance Control and provide an initial visual report stating Major Emergency (Major Incident) Standby or Declared

Maintain communication with Practitioner 2

Leave the ignition keys in place and remain with vehicle

Carry out Communications Officer role until relieved

Practitioner 2
(Ideally MIMMS trained)

Carry out scene survey

Give situation report to Ambulance Control using METHANE message

Carry out HSE Controller of Operations (Ambulance Incident Officer) role until relieved

Liaise with Garda Controller of Operations (Police Incident Officer) and Local Authority Controller of Operations (Fire Incident Officer)

Select location for Holding Area (Ambulance Parking Point)

Set up key areas in conjunction with other Principal Response Agencies on site;
- Site Control Point (Ambulance Control Point),
- Casualty Clearing Station
- Ambulance loading point
- On site co-ordination centre

If single Practitioner is first on site combine both roles until additional Practitioners arrive

METHANE message
M – Major Emergency declaration / standby
E – Exact location of the emergency
T – Type of incident (transport, chemical etc.)
H – Hazards present and potential
A – Access / egress routes
N – Number of casualties (injured or dead)
E – Emergency services present and required

The first ambulance crew does not provide care or transport of patients as this interferes with their ability to liaise with other services, to assess the scene and to provide continuous information as the incident develops

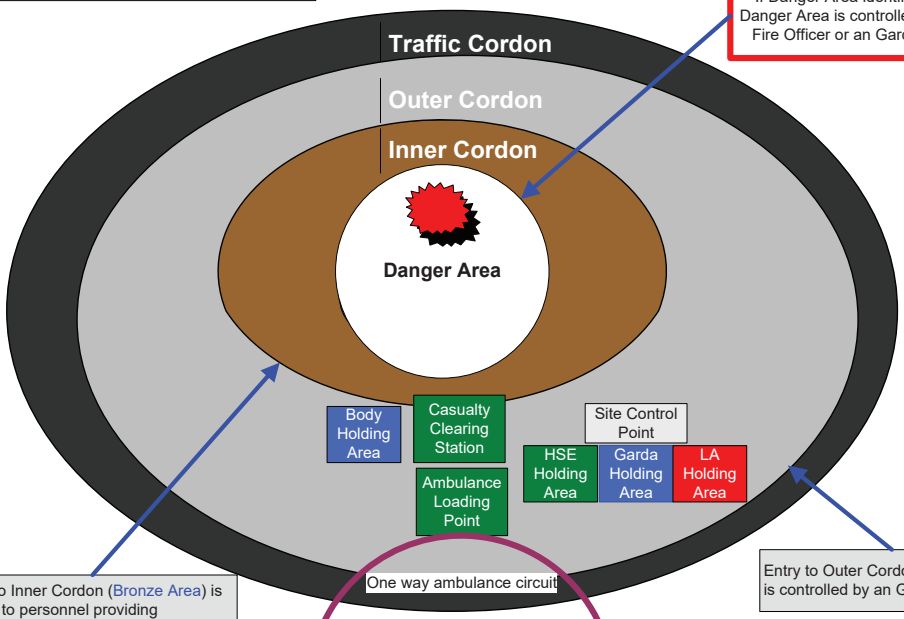
Major Emergency (Major Incident) – Operational Control

4/5/6.16.2
Version 3, 12/2020

EMT P AP

Irish (Major Emergency) terminology in black
UK (Major Incident) terminology in blue

If Danger Area identified, entry to Danger Area is controlled by a Senior Fire Officer or an Garda Síochána



Entry to Inner Cordon (Bronze Area) is limited to personnel providing emergency care and or rescue
Personal Protective Equipment required

Entry to Outer Cordon (Silver area) is controlled by an Garda Síochána

Management structure for;
Outer Cordon, Tactical Area (Silver Area)
On-Site Co-ordinator
HSE Controller of Operations (Ambulance Incident Officer)
Site Medical Officer (Medical Incident Officer)
Local Authority Controller of Operations (Fire Incident Officer)
Garda Controller of Operations (Police Incident Officer)

Management structure for;
Inner Cordon, Operational Area (Bronze Area)
Forward Ambulance Incident Officer (Forward Ambulance Incident Officer)
Forward Medical Incident Officer (Forward Medical Incident Officer)
Fire Service Incident Commander (Forward Fire Incident Officer)
Garda Cordon Control Officer (Forward Police Incident Officer)

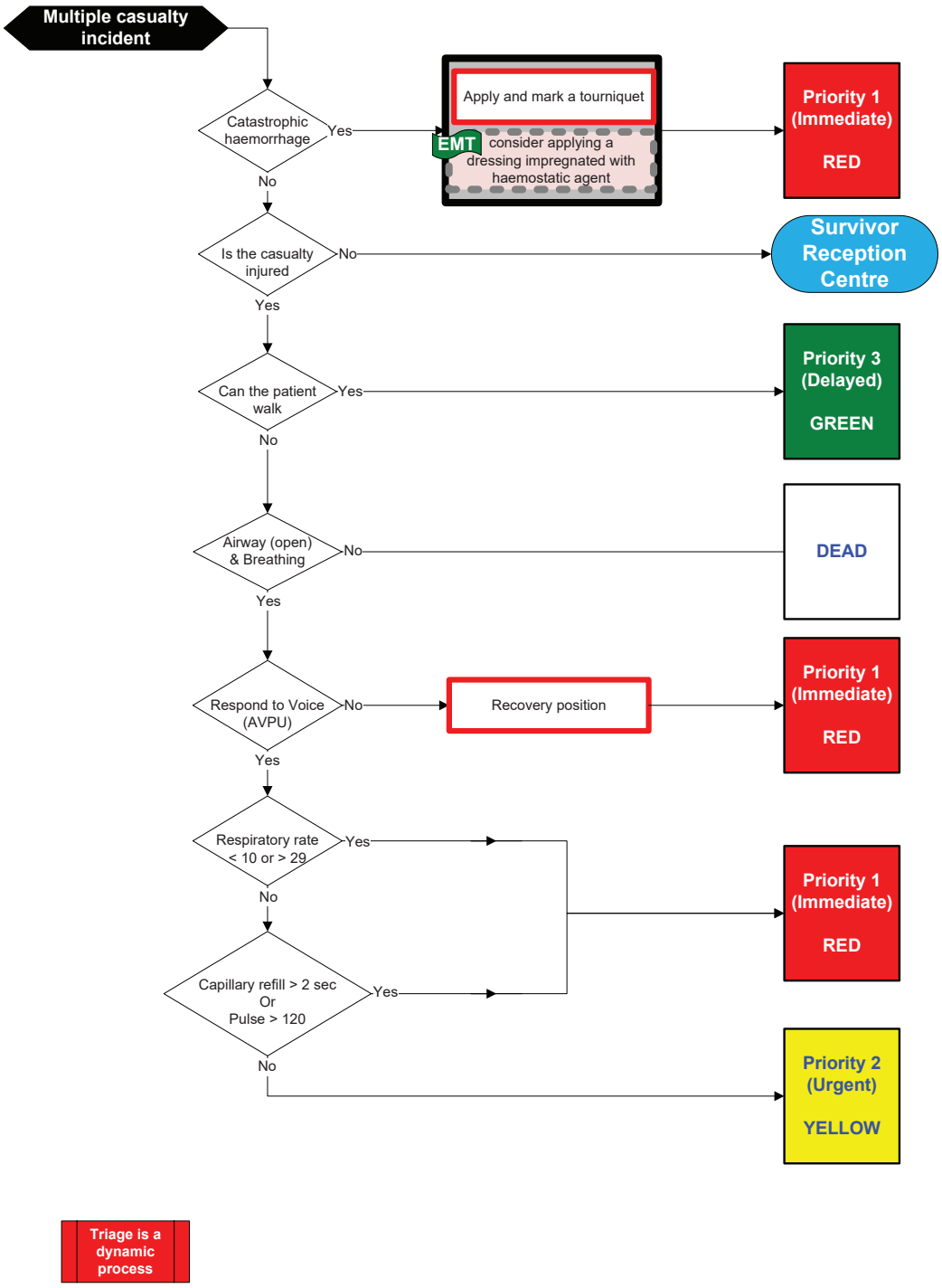
Please note that Controller of Operations may be other than ambulance or fire officers, depending on the nature of the emergency

Other management functions for;
Major Emergency site
Casualty Clearing Officer
Triage Officer
Ambulance Parking Point Officer
Ambulance Loading Point Officer
Communications Officer
Safety Officer

Triage Sieve

4/5/6.16.3
Version 2, 12/2020

EMT P AP



Triage Sort

5/6.16.4
Version 2, 12/2020

P AP

Multiple casualty incident

Triage is a dynamic process

Cardiopulmonary function	Measured value	Score	Insert score
Respiratory Rate	10 – 29 / min > 29 / min 6 – 9 / min 1 – 5 / min None	4 3 2 1 0	A
Systolic Blood Pressure	≥ 90 mm Hg 76 – 89 mm Hg 50 – 75 mm Hg 1 – 49 mm Hg No BP	4 3 2 1 0	B
Glasgow Coma Scale	13 – 15 9 – 12 6 – 8 4 – 5 3	4 3 2 1 0	C
Triage Revised Trauma Score			A+B+C

Revised Trauma Score

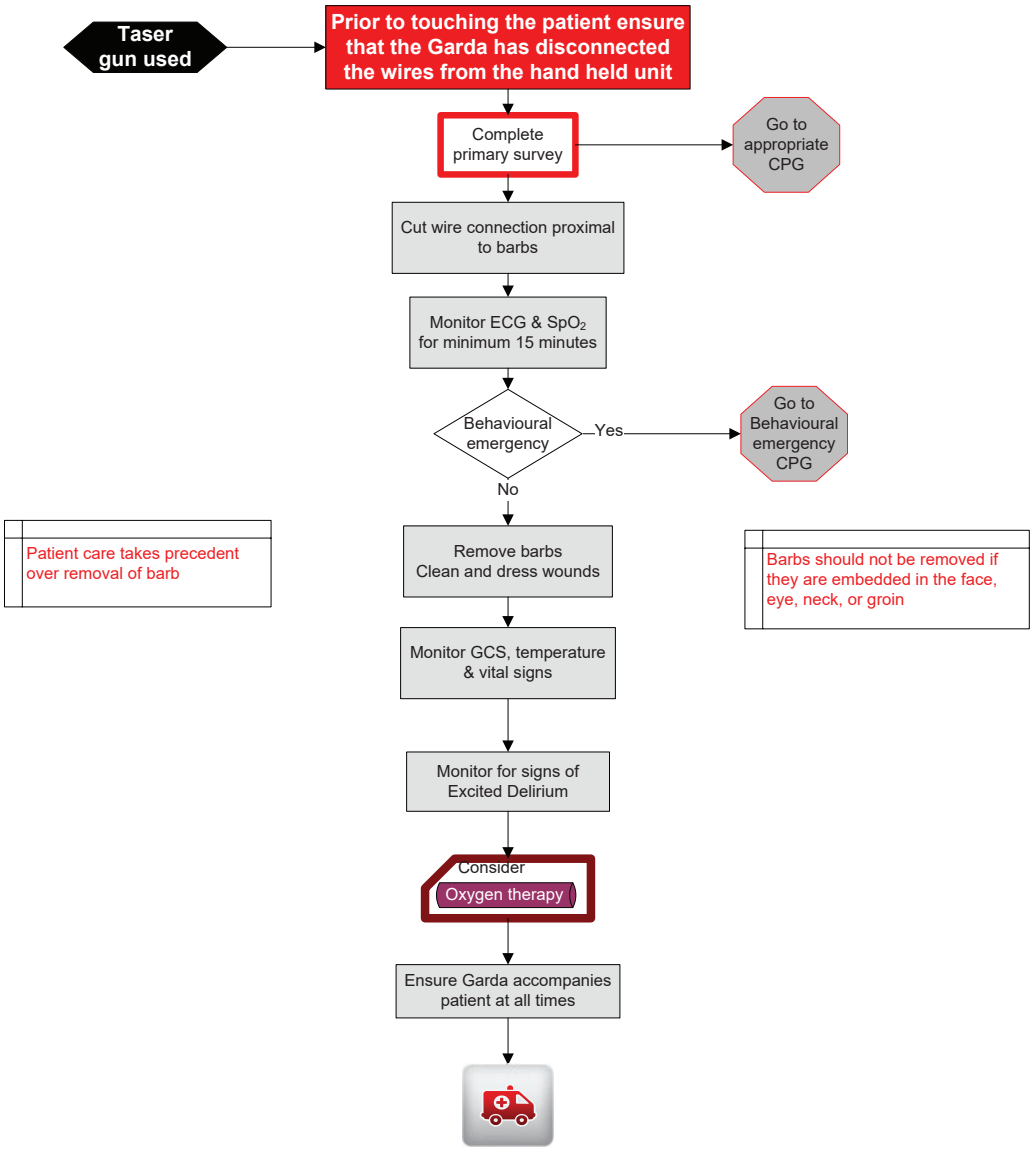
- 1 - 10 → **Priority 1 (Immediate) RED**
- 11 → **Priority 2 (Urgent) YELLOW**
- 12 → **Priority 3 (Delayed) GREEN**
- 0 → **DEAD**

Eye Opening	Spontaneous To Voice To Pain None	4 3 2 1
Verbal Response	Oriented Confused Inappropriate words Incomprehensible sounds None	5 4 3 2 1
Motor Response	Obeys commands Localises pain Withdraw (pain) Flexion (pain) Extension (pain) None	6 5 4 3 2 1
Glasgow Coma Scale		

Conducted Electrical Weapon (Taser)

5/6.16.5
Version 2, 12/2020

P AP



Patient care takes precedent over removal of barb

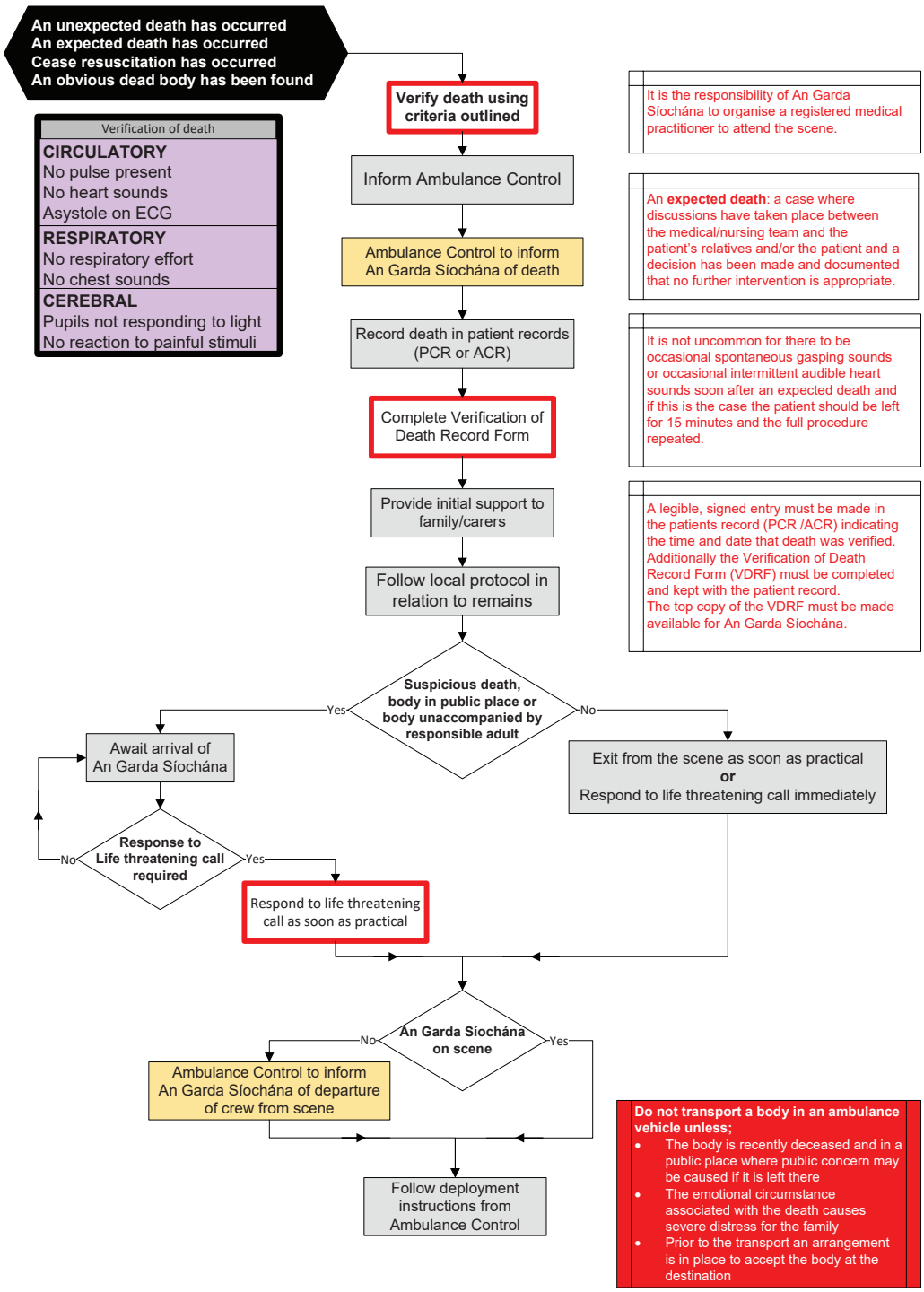
Barbs should not be removed if they are embedded in the face, eye, neck, or groin

Note:
This CPG was developed in conjunction with the Chief Medical Officer, An Garda Síochána

Verification of Death

5/6.16.6
Version 2, 12/2020

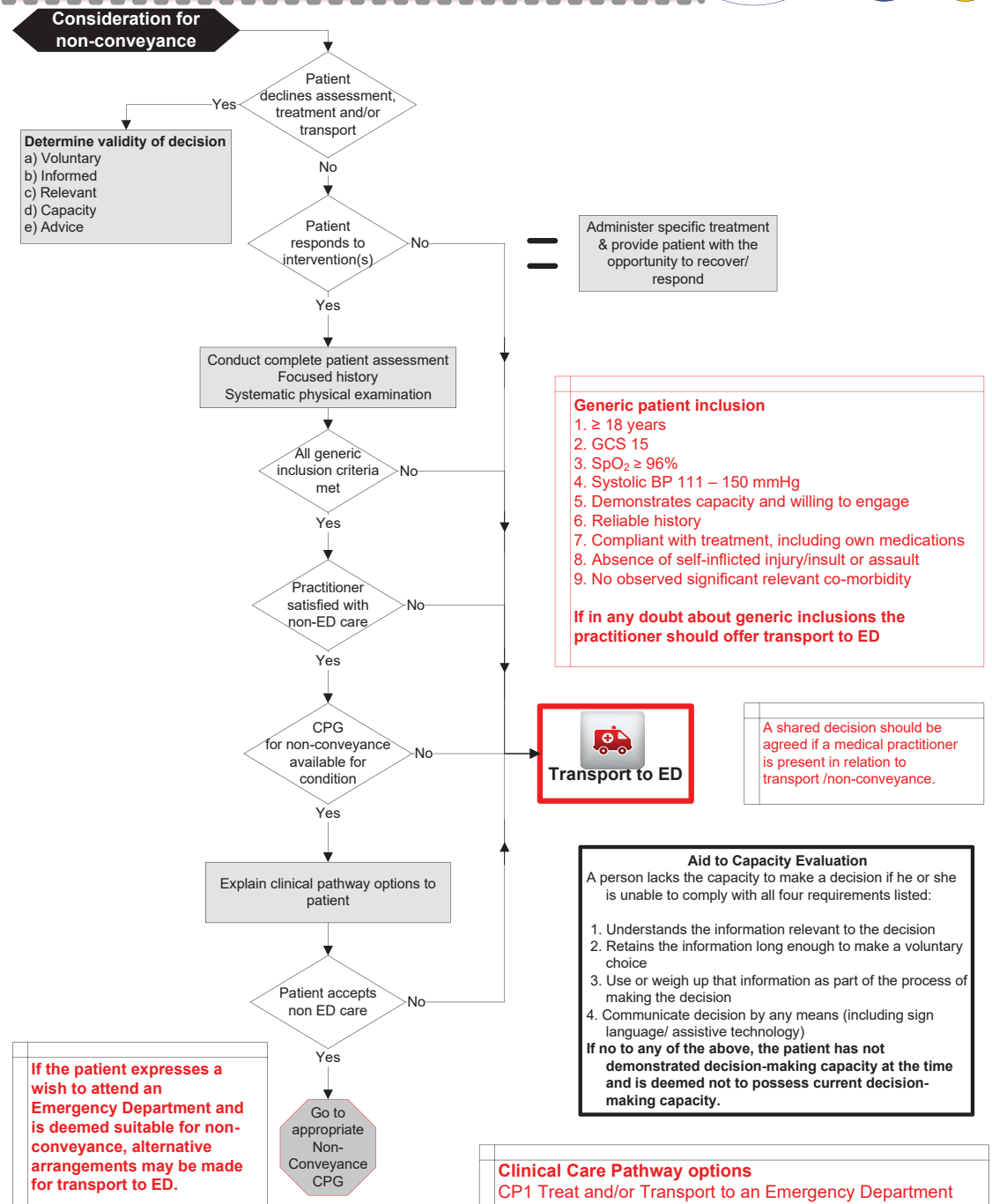
P AP



Clinical Care Pathway Decision – Non-conveyance Adult

5/6.17.1
Version 3 03/2023

P AP



Generic patient inclusion

1. ≥ 18 years
2. GCS 15
3. SpO_2 ≥ 96%
4. Systolic BP 111 – 150 mmHg
5. Demonstrates capacity and willing to engage
6. Reliable history
7. Compliant with treatment, including own medications
8. Absence of self-inflicted injury/insult or assault
9. No observed significant relevant co-morbidity

If in any doubt about generic inclusions the practitioner should offer transport to ED

A shared decision should be agreed if a medical practitioner is present in relation to transport /non-conveyance.

Aid to Capacity Evaluation

A person lacks the capacity to make a decision if he or she is unable to comply with all four requirements listed:

1. Understands the information relevant to the decision
2. Retains the information long enough to make a voluntary choice
3. Use or weigh up that information as part of the process of making the decision
4. Communicate decision by any means (including sign language/ assistive technology)

If no to any of the above, the patient has not demonstrated decision-making capacity at the time and is deemed not to possess current decision-making capacity.

If the patient expresses a wish to attend an Emergency Department and is deemed suitable for non-conveyance, alternative arrangements may be made for transport to ED.

Clinical Care Pathway options

CP1 Treat and/or Transport to an Emergency Department
CP2 Treat and/or Refer for follow up care within 2 hours (arranged with local practitioner)
CP3 Treat and/or Refer to specialist clinic
CP4 Treat and/or Refer to Community Paramedic
CP5 Treat and/or Refer for follow up care next working day
CP6 Treat and/or self care with after care instructions

Hypoglycaemia – Non-conveyance Adult

5/6.17.2
Version 3, 3/2023

P AP

From Clinical Pathway Decision CPG

Diagnosed with diabetes and on treatment

Hypoglycaemia identified
- No
- Yes

Exclusions present
- Yes
- No

CP 1 Transport

Suggest an appropriate patient follow up

CP 3 Specialist Clinic or **CP 5 GP next working day**

Follow locally organised arrangements for referral

1. Complete after care Instructions and give a copy to the patient or carer
2. Complete the PCR and mark for Clinical Audit

Hypoglycaemia defined

(i) Documented low blood glucose
(ii) Symptoms of hypoglycaemia present
(iii) Reversal of symptoms when blood glucose returns to normal

Specific Hypoglycaemic exclusion

1. Recovery time > 15 minutes
2. Latest blood glucose < 4.0mmol/L (after treatment)
3. Impaired hypoglycaemia awareness (Gold score ≥4)
4. On oral hypoglycaemics
5. T2DM with intermediate or high risk stratification for hypoglycaemia
6. Unable or unwilling to eat
7. Seizure in association with hypoglycaemia
8. Insulin or oral hypoglycaemics overdose
9. No social support available
10. Recent medication change or additional medications prescribed (within 30 days)

If in any doubt about 1 to 10 above the practitioner should transport to ED

Ensure patient consumes both quick (sweetened drinks, fruit juice or sweets) and longer acting (bread, toast, biscuit) carbohydrates

Flush line with 10mL NaCl following removal of 10% Glucose infusion

Gold score
How well can you detect the onset of hypoglycaemia?

Always aware 1	2	3	4	5	6	7 Never aware

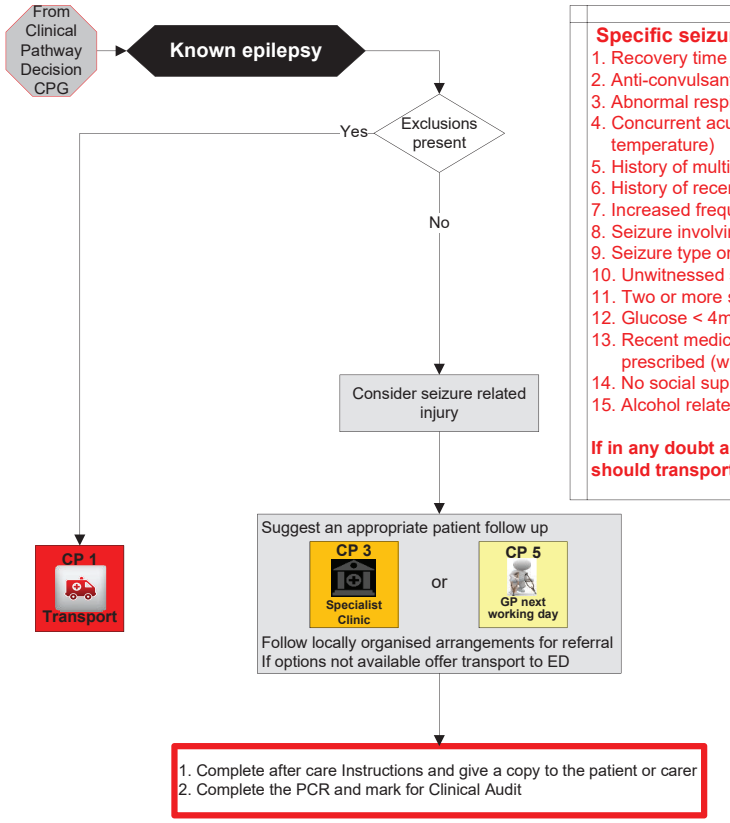
Hypoglycaemia Risk Stratification Tool for T2DM
(Karter, 2017)

(i) ≥ 3 prior hypoglycaemia-related ED or hospital admissions Or (ii) 1-2 prior hypoglycaemia-related ED or hospital admissions AND insulin user	High Risk
(iii) Insulin user AND age ≥ 77 years AND ≥ 2 ED visits in prior year Or (iv) Sulfonylurea user AND age ≥ 77 years AND severe or end stage kidney disease	Intermediate Risk

Isolated Seizure – Non-conveyance Adult

5/6.17.3
Version 3, 3/2023

P AP



Specific seizure exclusion

1. Recovery time > 15 minutes
2. Anti-convulsant administered
3. Abnormal respiration rate (< 12 or > 20)
4. Concurrent acute illness (including abnormal temperature)
5. History of multi-seizure presentations
6. History of recent head injury
7. Increased frequency of seizures
8. Seizure involving submersion or injury
9. Seizure type or pattern differing to usual presentation
10. Unwitnessed seizure
11. Two or more seizures within 24 hours
12. Glucose < 4mmol/L
13. Recent medication change or additional medications prescribed (within 30 days)
14. No social support available
15. Alcohol related seizure

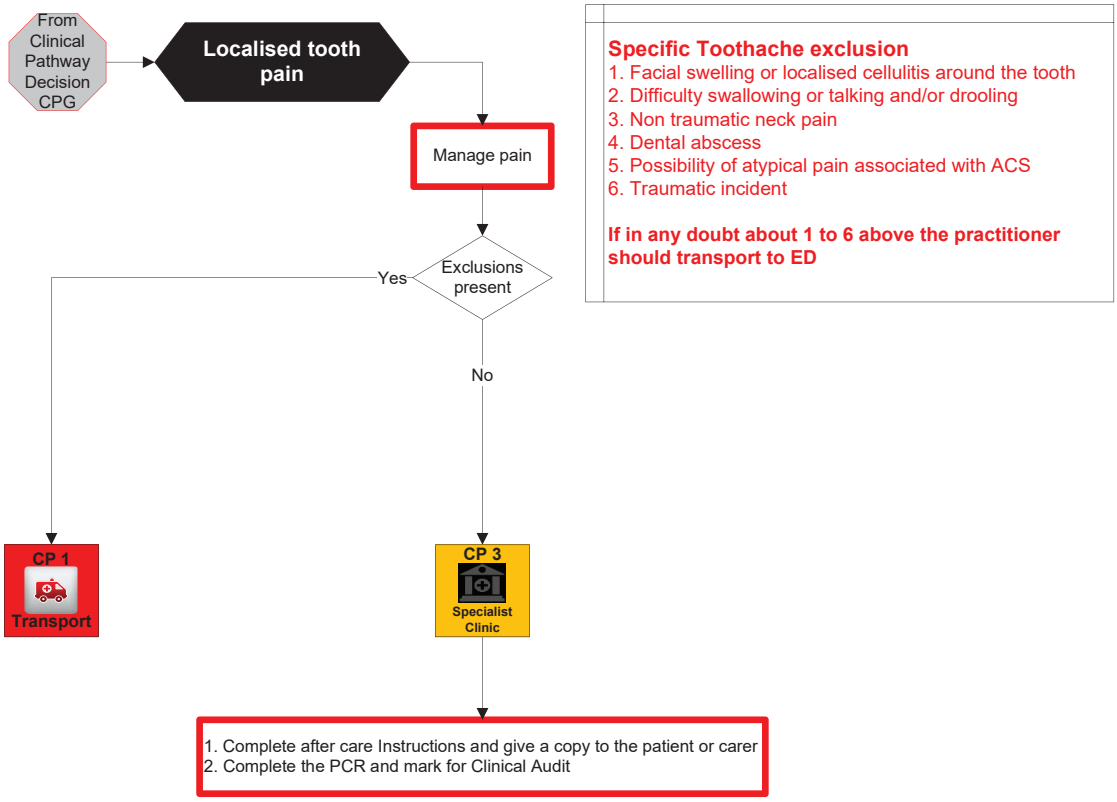
If in any doubt about 1 to 15 above the practitioner should transport to ED

Isolated seizure:
Lasting < 5 minutes
Similar to previous seizure events

Toothache – Non-conveyance Adult

5/6.17.4
Version 3, 3/2023

P AP



Specific Toothache exclusion

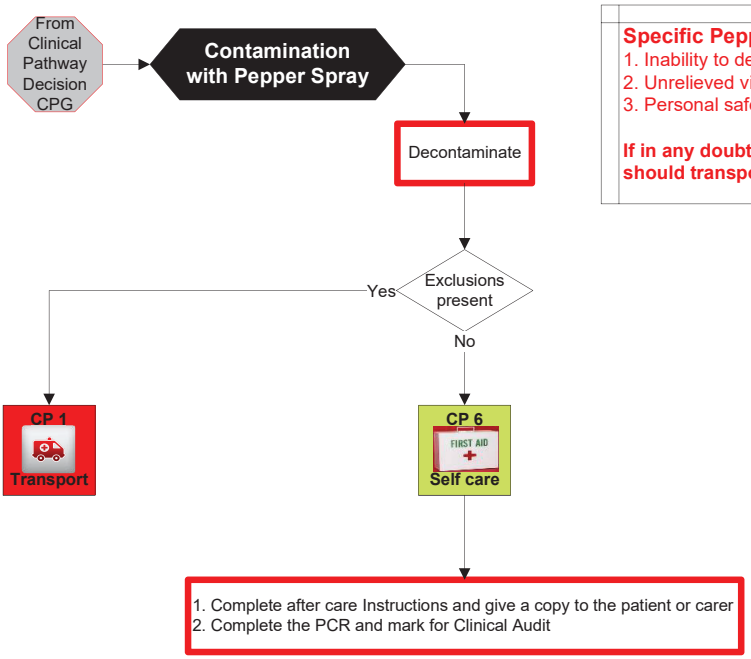
1. Facial swelling or localised cellulitis around the tooth
2. Difficulty swallowing or talking and/or drooling
3. Non traumatic neck pain
4. Dental abscess
5. Possibility of atypical pain associated with ACS
6. Traumatic incident

If in any doubt about 1 to 6 above the practitioner should transport to ED

Pepper (Oleoresin) spray – Non-conveyance Adults

5/6.17.5
Version 3, 3/2023

P AP



Specific Pepper spray exclusion
1. Inability to decontaminate
2. Unrelieved visual disturbance
3. Personal safety issues

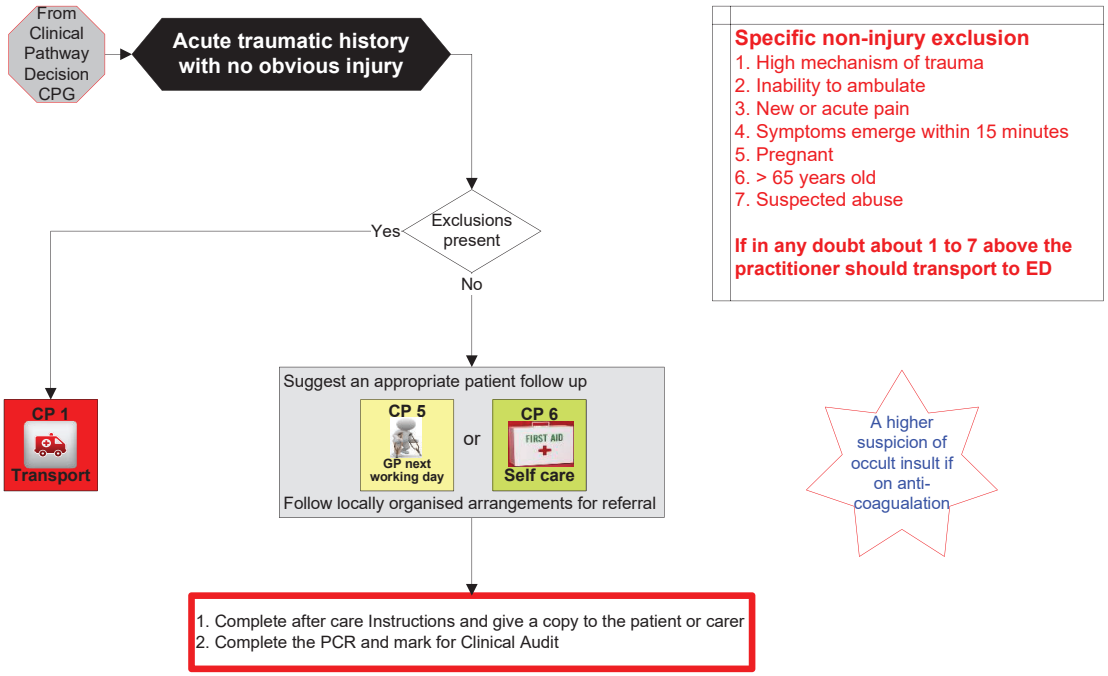
If in any doubt about 1 to 3 above the practitioner should transport to ED

Oleoresin capsicum spray exposure - Decontamination
1. Irrigate face with copious amounts of cold water. Where possible use running water and encourage patient to lean forward during treatment
2. Patient's face and affected skin should be washed with a low irritant shampoo
   - Pour 5 mL of shampoo onto your gloved hand and massage into patient's face and affected area
   - Wash off shampoo with cold water
   - A second application of shampoo may be necessary as eyebrows, beards and moustaches are areas that may cause prolonged contamination
   - Ongoing decontamination may be required for up to 20 minutes
3. Irrigate eyes ensuring that the area under the eyelids is well irrigated
4. To help relieve the burning sensation ice packs may be placed on affected area
5. Consideration should be given to the presence of hypothermia, due to the large amounts of cold water required in the decontamination process

Non-injury following trauma – Non-conveyance Adult

5/6.17.6
Version 3, 3/2023

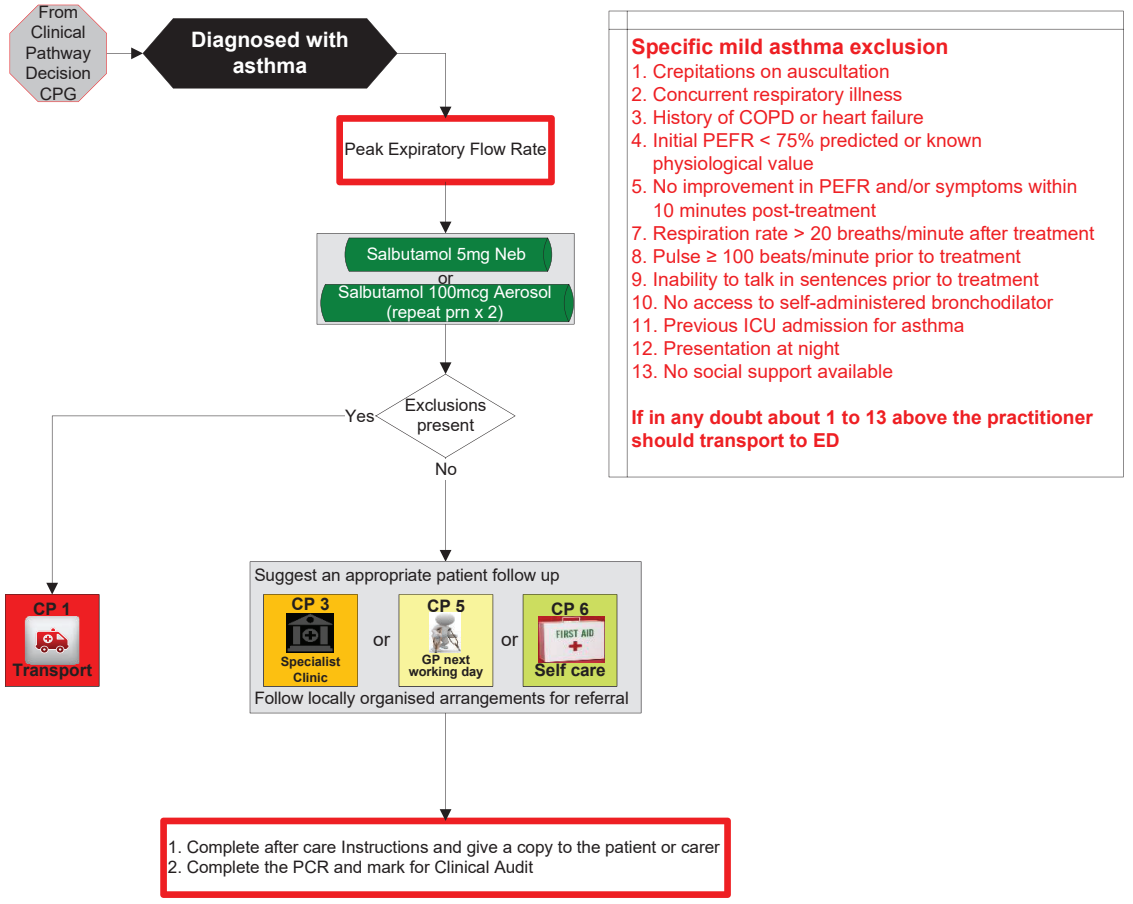
P AP



Mild Bronchospasm – Non-conveyance Adult

5/6.17.7
Version 3, 3/2023

P AP



Specific mild asthma exclusion

1. Crepitations on auscultation
2. Concurrent respiratory illness
3. History of COPD or heart failure
4. Initial PEFR < 75% predicted or known physiological value
5. No improvement in PEFR and/or symptoms within 10 minutes post-treatment
7. Respiration rate > 20 breaths/minute after treatment
8. Pulse ≥ 100 beats/minute prior to treatment
9. Inability to talk in sentences prior to treatment
10. No access to self-administered bronchodilator
11. Previous ICU admission for asthma
12. Presentation at night
13. No social support available

If in any doubt about 1 to 13 above the practitioner should transport to ED

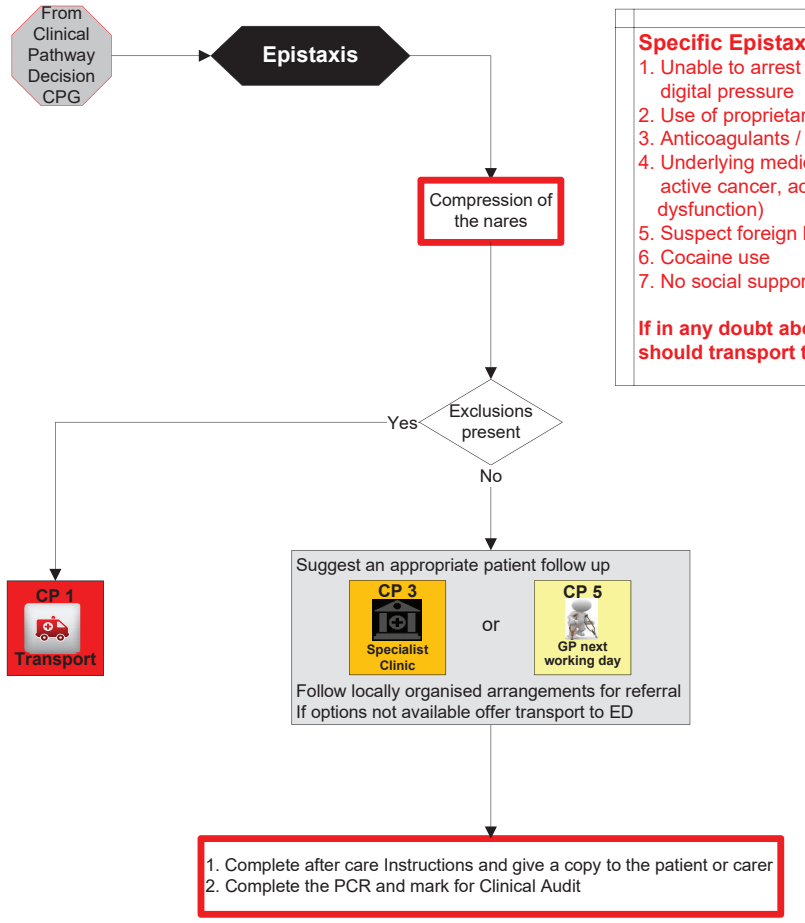
Mild Asthma

No life threatening features
PEFR: > 75% best or predicted
SpO_2: > 92%
Speech: Talks in sentences and can lie down
Respiratory: Mild wheeze and respirations < 25 breaths/min
Pulse: < 100 beats/min
BP: Normal

Epistaxis – Non-conveyance Adult

5/6.17.8
Version 3, 3/2023

P AP



Specific Epistaxis exclusion

1. Unable to arrest haemorrhage despite 15 minutes of digital pressure
2. Use of proprietary nasal pack
3. Anticoagulants / antiplatelets prescribed
4. Underlying medical condition (e.g. haemophilia, active cancer, active liver disease and platelet dysfunction)
5. Suspect foreign body
6. Cocaine use
7. No social support available

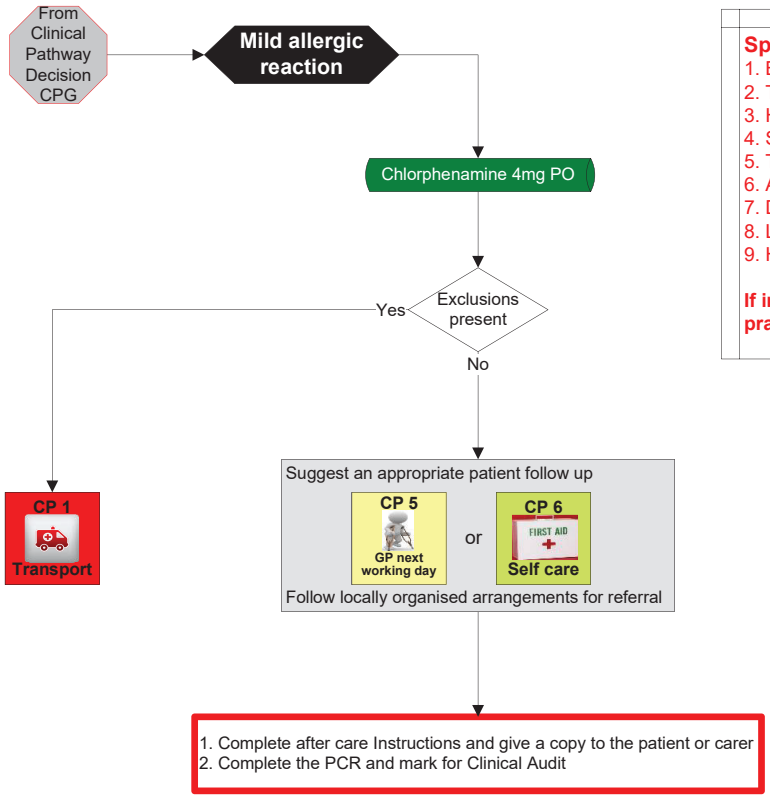
If in any doubt about 1 to 7 above the practitioner should transport to ED

Avoid aspirin and other nonsteroidal anti-inflammatory drugs (NSAIDs)

Mild Allergy – Non-conveyance Adult

5/6.17.9
Version 3, 3/2023

P AP



Specific Allergy exclusion

1. Bronchospasm
2. Tightness of airway
3. Hoarseness or difficulty speaking
4. Swollen lips or tongue
5. Tachycardia
6. Anxiety
7. Dizziness
8. Loss of consciousness
9. History of anaphylaxis

If in any doubt about 1 to 9 above the practitioner should transport to ED

Mild allergic reactions typically involve skin features:

- urticarial rash or erythema
- flushing

Medication Formulary for Advanced Paramedics

The Medication Formulary is published by the Pre-Hospital Emergency Care Council (PHECC) to enable pre-hospital emergency care practitioners to be competent in the use of medications permitted under Medicinal Products 7th Schedule (SI 177 of 2021).

This is a summary document only and practitioners are advised to consult with official publications to obtain detailed information about the medications used.

The Medication Formulary is recommended by the Medical Advisory Committee (MAC) prior to publication by Council.

The medications herein may be administered provided:

1. The practitioner is in good standing on the PHECC practitioner's Register.
2. The practitioner complies with the Clinical Practice Guidelines (CPGs) published by PHECC.
3. The practitioner is acting on behalf of an organisation (paid or voluntary) that is a PHECC licensed CPG Provider.
4. The practitioner is privileged, by the organisation on whose behalf he/she is acting, to administer the medications.
5. The practitioner has received training on, and is competent in, the administration of the medication.
6. The medications are listed on the Medicinal Products 7th Schedule.

The context for administration of the medications listed here is outlined in the CPGs.

Every effort has been made to ensure accuracy of the medication doses herein. The dose specified on the relevant CPG shall be the definitive dose in relation to practitioner administration of medications. The principle of titrating the dose to the desired effect shall be applied. The onus rests on the practitioner to ensure that he/she is using the latest versions of CPGs which are available on the PHECC website www.phecc.ie

Sodium Chloride 0.9% (NaCl) is the IV/IO fluid of choice for pre-hospital emergency care.

Water for injection shall be used when diluting medications, however if not available NaCl (0.9%) may be used if not contraindicated.

All medication doses for patients ≤ 15 years shall be calculated on a weight basis unless an age-related dose is specified for that medication.

The route of administration should be appropriate to the patient's clinical presentation. IO access is authorised for advanced paramedics for life threatening emergencies (or under medical direction).

APPENDIX 1 - Medication Formulary

The dose for paediatric patients may never exceed the adult dose.

Approved Paediatric weight estimations approved are:

Neonate =	3.5 Kg
Six months =	6 Kg
One to five years =	(age x 2) + 8 Kg
Greater than 5 years =	(age x 3) + 7 Kg

Pregnancy caution:

Medications should be prescribed in pregnancy only if the expected benefit to the mother is thought to be greater than the risk to the foetus, and all medications should be avoided, if possible, during the first trimester.

PHECC practitioners therefore should avoid using medications in early pregnancy unless absolutely essential and where possible medical advice should be sought prior to administration.

Paramedic authorisation for IV infusion continuation

PHECC registered paramedics are authorised to continue an established IV infusion in the absence of an advanced paramedic or doctor during transportation.

Medication Formulary Age Designations

Index of medication formulary (Adult ≥ 16 and Paediatric ≤ 15 unless otherwise stated)

This version contains 45 medications

Please visit www.phecc.ie for the latest edition/version.

APPENDIX 1 - Medication Formulary

Changes to Monographs for June 2023 updates to CPG 2021

CHLORPHENAMINE		
Heading	**Add**	**Delete**
Classification	Sedating Antihistamine – H1 receptor antagonist.	Sedating Antihistamine – H2 receptor antagonist.

DEXAMETHASONE		
Heading	**Add**	**Delete**
Presentation		Each mL contains 3.3 mg dexamethasone (as sodium phosphate) equivalent to 4 mg dexamethasone phosphate (or 4.37 mg dexamethasone sodium phosphate).
Administration		Intramuscular (IM)
Usual Dosages		IM
Additional information		Dexamethasone 3.8 mg/ mL injection has replaced dexamethasone phosphate 4 mg/mL injection – Double check product label & literature before administering dose. Dexamethasone 1 mg = Dexamethasone phosphate 1.2 mg. (As per CHI).

IBUPROFEN		
Heading	**Add**	**Delete**
Contra-indications	suspected or confirmed chicken pox.	
Additional information	Ibuprofen should not be administered to children with a suspected or confirmed chicken pox diagnosis.	

KETAMINE		
Heading	**Add**	**Delete**
Presentation	Vial concentration 10 mg/ mL	Vial 200 mg in 20 mL
Usual dosages	Note! Doses resulting in a volume < 1 ml should be diluted up to 1 ml using NaCL 0.9% to facilitate administration over 60 – 120 seconds Paediatric: > 12 months	

MIDAZOLAM		
Heading	**Add**	**Delete**
Additional Information		AP from advice re seizure recommencing

NITROUS OXIDE 50% AND OXYGEN 50% (ENTONOX®)		
Heading	**Add**	**Delete**
Contra-indications	Bullous Emphysema/ Middle Ear Procedures/ Following a recent dive/ Recent eye surgery involving bubble gas insertion/ Head injury/ Conditions where air is trapped in the body and expansion would be dangerous/ Maxillo-facial injuries/ Sedation or intoxication.	

PARACETAMOL		
Heading	**Add**	**Delete**
Usual dosages	PR route for paramedic	

APPENDIX 1 - Medication Formulary

Changes and updates for CPG 2021

New Medications introduced:

- Activated Charcoal
- Dexamethasone

Medications removed:

- Enoxaparin
- Hartmanns Solution
- Nifedipine
- Tenecteplase

Changes to Monographs

1. Class and Description headings have merged to one Classification heading in line with BNF drug descriptors
2. Long term side effects have been removed unless essential
3. Pharmacology/Action has been removed unless essential information

EPINEPHRINE (1:1000) CHANGES TO ADRENALINE (1:1000)			
Heading	**Add**		**Delete**
Medication	Adrenaline 1:1000.		Epinephrine 1:1000.
Indications	Stridor, Symptomatic Bradycardia and Cardiogenic Shock.		
Contra-indications	Hypersensitivity to excipients.		
Usual Dosages	< 6 months 6 months to < 6 years ≥ 6 years to < 12 years ≥ 12 years	10 mcg/kg IM 150 mcg (0.15 mL IM) 300 mcg (0.3 mL IM) 300 mcg (0.3 mL) (if child small or prepubital) or 500 mcg (0.5 mL IM)	All dosing which was previously recommended under the following age categories < 6 months, 6 months to 5 years, 6 to 8 years, > 8 years.

APPENDIX 1 - Medication Formulary

EPINEPHRINE (1:10,000) CHANGES TO ADRENALINE (1:10,000)		
Heading	**Add**	**Delete**
Medication	Adrenaline 1:10000.	Epinephrine 1:10000.
Usual Dosages	10 mcg/kg.	0.01mg/kg.

ADENOSINE		
Heading	**Add**	**Delete**
Usual dosages	*Initial Adenosine unsuccessful:* If the first dose does not result in elimination of the supraventricular tachycardia within 1 to 2 minutes: Repeat doses at 12 mg. Max 2 x 12 mg.	
Additional Information	*Added to cautions:* Pericarditis/ QT interval prolongation.	

ASPIRIN		
Heading	**Add**	**Delete**
Classification	**Merge Class and Description to Classification:** Antithrombotic – Antiplatelet Drug which reduces clot formation.	Class. Description.
Description		Anti-inflammatory agent and an inhibitor of platelet function. Useful agent in the treatment of various thromboembolic diseases such as acute myocardial infarction.
Pharmacology/ Action		*Antithrombotic:* Inhibits the formation of thromboxane A2, which stimulates platelet aggregation and artery constriction. This reduces clot/ thrombus formation in an MI.
Long term side-effects		Generally mild and infrequent but incidence of gastro-intestinal irritation with slight asymptomatic blood loss, increased bleeding time, bronchospasm and skin reaction in hypersensitive patients.

APPENDIX 1 - Medication Formulary

ATROPINE		
Heading	**Add**	**Delete**
Presentation	Pre-filled disposable syringe 1 mg/10 mL. Pre-filled disposable syringe 0.5 mg/0.5 mL. Ampoule 600 mcg in 1 mL.	0.6mg in 1 mL.
Usual Dosages	*Symptomatic Bradycardia:* 0.5 mg (500 mcg) – 1 mg IV. (Repeat at 3-5 min intervals to Max 3 mg).	Symptomatic Bradycardia: 0.6 mg (600 mcg) IV. (Repeat at 3-5 min intervals to Max 3 mg).
Contra-indications	Hypersensitivity to atropine, closed angle glaucoma, achalasia of the oesophagus, paralytic ileus and toxic megacolon/ *NB: not relevant in life-threatening emergencies (e.g. bradyarrhythmia, poisoning.*	Known severe adverse reaction.

CEFTRIAXONE		
Heading	**Add**	**Delete**
Administration	Should be administered over 5 minutes.	Should be administered over 2-4 minutes.
Indications	Open fractures.	
Side effects	Rash/ Anaemia/ Coagulation disorder.	Diarrhoea/ rash/ headache/ dizziness/ nausea/ vomiting/ pruritis.

APPENDIX 1 - Medication Formulary

CHLORPHENAMINE

Heading	Add	Delete
Classification	Sedating antihistamine – H2 receptor antagonists.	Class: Antihistamine. Description: H1 antagonist to counteract the effects of histamine release.
Usual dosages	For IV route, administer over 1 minute. May dilute with Sodium Chloride 0.9% for convenient administration volume of small doses.	Removal of all existing paediatric dosing.
Additional information	Hypersensitivity to excipients.	For IV route, administer over 1 minute. May dilute with Sodium Chloride 0.9% for convenient administration volume of small doses.
Side-effects	Reworded: Causes drowsiness, do not drive or operate machinery.	

Severity	Age	Dose and route of administration
Mild	6 to 11 years	2 mg PO (EMT/ P/ AP)
	≥ 12 years	4 mg PO (EMT/ P/ AP)
Moderate	1 month – 6 months	0.25 mg/kg IM (EMT/ P) or 0.25 mg/kg IV (AP)
	> 6 months - < 6 years	2.5 mg IM (EMT/ P) or 2.5 mg IV (AP)
	6 to < 12 years	2 mg PO or 5 mg IM (EMT/ P) or 5 mg IV (AP).
	≥ 12 years	4 mg PO or 10 mg IM (EMT/ P) or 10 mg IV (AP)
Severe	1 month - 6 months	0.25 mg/kg IM (EMT/ P) or 0.25 mg/kg IV (AP)
	> 6 months - <6 years	2.5 mg IM (EMT/ P) or 2.5 mg IV (AP)
	6 to <12 years	5 mg IM (EMT/ P) or 5 mg IV (AP)
	≥ 12 years	10 mg IM (EMT/ P) or 10 mg IV (AP)

CYCLIZINE

Heading	Add	Delete
Administration		Oral (PO).

APPENDIX 1 - Medication Formulary

DIAZEPAM RECTAL SOLUTION		
Heading	**Add**	**Delete**
Usual Dosages	**Age Dose** ≥ 1 month - < 2 years: 5 mg (PR). ≥ 2 years - < 12 years 5-10 mg (PR) ≥ 12 years: 10 mg (PR). Repeated after 5-10 minutes if required	< 3 years:2.5 mg (PR). 3 to 7 years: 5mg (PR). ≥ 8 years:10 mg (PR).

FENTANYL		
Heading	**Add**	**Delete**
Administration	New CPGs. 6.6.5: Procedural Sedation – Adult. 6.13.27: Procedural Sedation – Child.	
Indication	Procedural sedation Adult/ Child.	
Usual dosages	Adult pain 100 mcg IN. Adult pain 50 mcg IV. Paediatric pain 1.5 mcg/kg IN (max 100 mcg). *Adult Procedural Sedation* (AP only) 25-50 mcg IV (repeatable at > 5 min intervals). 50 mcg IN/IM (repeatable at > 5 min intervals). *Paediatric Procedural Sedation* (AP only) 0.75 mcg/kg IV (repeatable at > 5min interval). 1.5 mcg/kg IN (repeatable at > 5min interval).	0.1 mg. 0.05 mg. 0.0015 mg/kg.

GLUCAGON		
Heading	**Add**	**Delete**
Usual dosages	Paediatric: ≥ 1 month and < 25 kg: 500 mcg IM. ≥ 1 month and ≥ 25 kg: 1 mg IM.	Paediatric: 1 - 8 years - 0.5 mg (500 mcg) IM. 8 years - 1 mg IM.
Side-effects	Common: Nausea Uncommon: Vomiting. Rare: may cause hypotension/ dizziness/ headache.	

GLUCOSE GEL		
Heading	**Add**	**Delete**
Classification	Class and Description merged.	Class. Description.
Administration	CPG 4/5/6.12.7: New-born Neonatal Care and Resuscitation.	

DEXTROSE 10% - CHANGES TO GLUCOSE 10%		
Heading	**Add**	**Delete**
Usual dosing	Paediatric: 2-3 mL/kg over 10 mins (loading dose). 0.05-0.07 mL/kg/min (maintenance dose).	5 mL/Kg IV/IO (repeat x 1 PRN).

GLYCERYL TRINITRATE (GTN)		
Heading	**Add**	**Delete**
Classification	**Merge Class and Description to Classification:** Antithrombotic – Antiplatelet Drug which reduces clot formation.	Class. Description.
Presentation		(0.4 mg).
Usual Dosages	*Angina or MI:* 400 mcg sublingual. (Repeat at 3-5 min intervals, Max: 1200 mcg). *EFR:* assist administration - 400 mcg sublingual max. *Pulmonary oedema:* 800 mcg / 2 sprays (repeat x 1 PRN) (P & AP).	0.4 mg. 1.2 mg. 0.4 mg. 0.8 mg.
Pharmacology / Action		Remove complete section.

APPENDIX 1 - Medication Formulary

GLYCOPYRRONIUM BROMIDE

Heading	Add	Delete
Usual Dosages	Adult 200 mcg SC.	Adult 400mcg SC.

HALOPERIDOL

Heading	Add	Delete
Administration	Agitation/ Delirium: 1 – 2 mg SC/PO. Nausea/ Vomiting: 0.5 – 1 mg SC.	

HYDROCORTISONE

Heading	Add	Delete
Usual Dosages	*Adult:* Infusion over 20-30 minutes. *Paediatric:* *Anaphylactic reaction:* < 6 months: (AP) - 25 mg IV (infusion in 100 mL NaCl) or IM (P/AP). ≥6 months - < 6 years: (AP) - 50 mg IV (infusion in 100 mL NaCl) or IM (P/AP). ≥ 6 years - < 12 years: (AP) - 100 mg IV (infusion in 100 mL NaCl) or IM (P/AP).	Child age dosing guidelines for anaphylaxis.
	Adrenal insufficiency: ≤ 11 months 50 mg IV (AP) infusion in 100 mL NaCl or IM injection (P/AP). 1- 5 years: 75 mg IV (AP) infusion in 100 mL NaCl or IM injection (P/AP). ≥ 6 years: 100 mg IV (AP) infusion in 100 mL NaCl or IM injection (P/AP).	*Adrenal insufficiency:* 6 months to ≤ 5 years: (AP). 50 mg IV (infusion in 100 mL NaCl) or IM injection (P/AP). 5 years: (AP) 100 mg IV or IM injection (P/AP).

APPENDIX 1 - Medication Formulary

IBUPROFEN		
Heading	**Add**	**Delete**
Classification	Analgesics: Non-Steroidal Anti-Inflammatory Drugs (NSAIDs). Pain and Inflammation in musculoskeletal disorders.	Class: Non-Steroidal Anti-Inflammatory Drugs (NSAIDs). Description: It is an anti-inflammatory analgesic.
Contra-Indications	Body weight <5kg.	
Long term side-effects		Remove list of long-term side-effects.

IPRATROPIUM BROMIDE		
Heading	**Add**	**Delete**
Usual dosages	*Adult:* 500 mcg neb (Max 2mg/24 hours). *Paediatric:* < 12 years: 250 mcg neb (Max 1mg/24 hours). ≥ 12 years: 500 mcg neb (Max 2mg/24 hours).	0.5 mg neb. 0.25 mg neb.

KETAMINE		
Heading	**Add**	**Delete**
Usual dosages	*Adult & Paediatric:* Change pain management to match CPG 0.1 mg – 0.3 mg/kg IV. *ADULT Procedural Sedation* 0.5 – 1 mg/kg **IV** (Repeatable at > 10min intervals). Consider: 5mg/kg **IM** (if no IV access available). *CHILD Procedural Sedation* 0.5 – 1 mg/kg **IV** (Repeatable at > 10min intervals). 4 – 5 mg/kg IM (if no IV access available).	0.1 mg/ kg IV.

APPENDIX 1 - Medication Formulary

LIDOCAINE		
Heading	**Add**	**Delete**
Presentation	Ampoule 1% Lidocaine 50 mg/ 5 mL.	5 mg/ 5 mL 1%.
Usual dosages	*NEW: Pain management Adult:* Lidocaine 1% 40 mg IO over 2 minutes. Wait 1 min. 2nd dose Lidocaine 1% 20 mg over 1 min. (supplementary dose of lidocaine 1% 20mg x 1 PRN no sooner than ≥ 45 mins). *NEW: Pain management Child:* Lidocaine 1% 500 mcg/kg (max 40mg) IO over 2 minutes. Wait one minute. 2nd dose 250 mcg/kg (max 20mg) IO over 1 minute. Total max 60mg.	

MAGNESIUM SULPHATE INJECTION		
Heading	**Add**	**Delete**
Presentation	Ampoule 1 g in 2 mL.	
Additional Information	Compatible with glucose 5% or Sodium Chloride 0.9%. Must be diluted prior to IV administration. Max concentration must not exceed 20% (200mg/mL).	

METHOXYFLURANE		
Heading	**Add**	**Delete**
Classification	Anaesthetics. General: Volatile anaesthetic agent.	
Contra-Indications	Malignant Hyperthermia.	

APPENDIX 1 - Medication Formulary

MIDAZOLAM SOLUTION

Heading	Add	Delete
Administration	*Adult:* the IV injection of midazolam should be given at a slow rate of approximately 1mg per 30 seconds. *Paediatric:* the initial IV dose of midazolam should be administered over 2-3 minutes. *CPG*: 6.6.5, 6.13.27.	
Usual Dosages	*Adult Procedural sedation:* 1 – 2.5 mg IV repeatable at >5 minute intervals. 5 mg IM/IN repeatable at >15 min intervals.	
	Child Procedural Sedation: **(With morphine):** 25 mcg/kg IV Repeatable at > 5 min intervals. **(With fentanyl/ketamine):** 25 mcg/kg IV Repeatable at > 5 min intervals. **(Dose for all options):** 25 mcg/kg IV Repeatable at > 5 min intervals.	

MORPHINE SULPHATE

Heading	Add	Delete
Administration	*CPG:* 6.6.5, 6.13.27.	
Usual Dosages	*Adult Procedural sedation:* 2 – 4 mg IV. Repeat dose > 5 minute interval. 5 mg IM. Repeat dose > 10 minute interval. *Child Procedural Sedation:* 100 mcg/kg IV – repeat at > 5min interval. 100 mcg/kg IM – repeat at > 10min interval.	
Additional information		Not recommended for headache.

NALOXONE

Heading	Add	Delete
Usual Dosages	400 mcg 800 mcg	0.4 mg 0.8 mg

NITROUS OXIDE 50% AND OXYGEN 50%		
Heading	**Add**	**Delete**
Additional Information	Caution should be issued before using Entonox with patients who have known Chronic Obstructive Pulmonary Disease (COPD) or other conditions where compromised chemoreceptor sensitivity/function may be present. May cause respiratory depression and increases in $PaCO_2$. In cold temperatures warm cylinder and invert at least 3 times to ensure mix of gases. Prolonged or frequent use of ENTONOX may result in megaloblastic marrow changes, myeloneuropathy and sub-acute combined degeneration of the spinal cord.	In cold temperatures warm cylinder and invert to ensure mix of gases.

ONDANSETRON		
Heading	**Add**	**Delete**
Contraindication	Congenital long QT syndrome.	
Side effects	Rare: QT prolongation – monitor.	

OXYGEN		
Heading	**Add**	**Delete**
Clinical Level		
Classification	Merged Class and Description.	Class. Description.
Pharmacology/Action		Pharmacology/Action Oxygenation of tissue/organs.
Additional Information	Caution with emollients containing paraffin e.g. lip balms & moisturisers – may lead to skin burns.	

APPENDIX 1 - Medication Formulary

PARACETAMOL		
Heading	**Add**	**Delete**
Presentation	500 mg of paracetamol in 50 mL solution for infusion.	0.1 mg.
Usual Dosages	15 mg/kg PO. PR (AP). > 1 month < 1 year - 80 mg PR.	20 mg/kg PO. > 1 month < 1 year - 90 mg PR.
Side effects		Long term side-effects.

SALBUTAMOL		
Heading	**Add**	**Delete**
Classification	Beta-2 Adrenoceptor agonist selective – short acting.	Class: Sympathetic agonist. Description: Sympathomimetic that is selective for Beta-2 Adrenergic receptors.
Presentation	100 mcg.	0.1 mg.
Usual Dosages	100 mcg metered aerosol spray.	0.1 mg metered aerosol spray.
Pharmacology / Action		Remove text/section Beta-2 agonist/ Bronchodilation/ relaxation of smooth muscle.

TRANEXAMIC ACID		
Heading	**Add**	**Delete**
Usual Dosages	*Paediatric:* 15 mg/kg (in 100mL NaCL) (Max 1g).	

Clinical Level: EMT P AP

MEDICATION	ACTIVATED CHARCOAL
Classification	Antidotes and Chelators – Intestinal adsorbents: reduction of absorption of poisons in the GI system / active elimination of poisons.
Presentation	Activated charcoal granules for suspension.
Administration	Oral suspension (PO). (*CPG:* 6.10.2).
Indications	Emergency treatment of acute oral poisoning or drug overdose.
Contra-Indications	Although activated charcoal is not contraindicated in poisoning by strong acids and alkalis and other corrosive substances, its value as a detoxicant for these substances is limited. Activated charcoal is poor in binding cyanide, iron salts and some solvents including methanol, ethanol and ethylene glycol.
Usual Dosages	*Adult:* 50g PO. Reconstitute with water as directed by manufacturer. The reconstituted product should be taken immediately. Repeat as necessary. *Paediatric:* Not Indicated.
Side effects	Bezoar/ Constipation/ diarrhoea/ GI disorders/ Black stools. Caution: aspiration may lead to airway obstruction.
Additional information	May be mixed with soft drinks or fruit juice for ease of administration & to mask the taste. Substances which may be absorbed by Activated Charcoal (but are not limited to) include: Aspirin & salicylates/ Barbiturates/ Benzodiazepines/ Chlormethiazole/ Chloroquine/ Chlorpromazine & related phenothiazines/ Clonidine/ Cocaine and other stimulants/ Digoxin and digitoxin/ Ibuprofen/ Mefenamic acid/ Mianserin/ Nicotine/ Paracetamol/ Paraquat/ Phenelzine and other MAOIs/ Phenytoin/ Propranolol and other Beta Blockers/ Quinine/ Theophylline/ Zidovudine.

Clinical Level: AP

MEDICATION	ADENOSINE
Classification	Cardiovascular system: Antiarrhythmic agent.
Presentation	6 mg in 2 mL solution. 3 mg per 1 mL (30 mg/10 mL) solution for infusion vials.
Administration	Intravenous (IV). (*CPG:* 5/6.3.4).
Indications	Paroxysmal supraventricular tachycardia (> 150) with signs of poor perfusion.
Contra-Indications	Asthma/Chronic obstructive lung disease/Wolff-Parkinson-White Syndrome Decompensated heart failure/Long QT syndrome/Second or third degree AV block/ Severe hypotension/ Sick sinus syndrome (unless pacemaker fitted).
Usual Dosages	*Adult:* 6 mg IV. *Initial Adenosine unsuccessful:* If the first dose does not result in elimination of the supraventricular tachycardia within 1 to 2 minutes: Repeat doses at 12 mg. Max 2 x 12 mg. *Paediatric:* Not Indicated.
Side effects	Angina (discontinue). Apprehension - arrhythmia (discontinue if asystole or severe bradycardia occur). AV block/ Dizziness/ Dyspnoea/ Flushing/ Headache/ Nausea/ Sinus pause.
Additional information	Initially 6 mg, administered into a large peripheral vein and given over 2 seconds, followed by rapid 10 mL Sodium Chloride 0.9% flush. Repeat doses of 12 mg are administered over 2 seconds. Monitor ECG. *Cautions:* Atrial fibrillation with accessory pathway/ Atrial flutter with accessory pathway/ Autonomic dysfunction/ Bundle branch block/ First-degree AV block/ Heart transplant/ Recent MI/ Severe heart failure/ Stenotic valvular heart disease/ Uncorrected Hypovolaemia/ Pericarditis/ QT interval prolongation.

Clinical Level: AP

MEDICATION	ADRENALINE (1:10,000)
Classification	Sympathomimetics – Vasoconstrictor. Acts on both alpha & beta receptors and increases both heart rate and contractility. It can cause peripheral vasodilation (beta) or vasoconstriction (alpha).
Presentation	Pre-filled syringe. 1mg/10mL (1:10,000) as 0.1 mg/mL.
Administration	Intravenous (IV). Intraosseous (IO). (*CPG:* 4/5/6.12.7, 4/5/6.13.23, 4/5/6.13.24, 4/5/6.13.25, 4/5/6.14.2, 5/6.14.3 4/5/6.14.5.
Indications	Cardiac arrest/ Paediatric bradycardia unresponsive to other measures.
Contra-Indications	Known severe adverse reaction.
Usual Dosages	*Adult:* **Cardiac arrest:** 1 mg (1:10,000) IV/IO. (Repeat every 3-5 mins). *Paediatric:* **Cardiac arrest:** 10 mcg/kg of Adrenaline 1:10,000 IV/IO. (Repeat every 3-5 mins). **Bradycardia:** 10 mcg/kg of Adrenaline 1:10,000 IV/IO (Repeat every 3-5 mins).
Side effects	In non-cardiac arrest patients: Palpitations/ Tachyarrhythmias/ Hypertension.
Additional information	*N.B.* Double check concentrations on pack before use.

APPENDIX 1 - Medication Formulary

Clinical Level: EFR EMT P AP

MEDICATION	ADRENALINE (1:1,000)
Classification	Sympathetic agonist, Sympathomimetic – Vasoconstrictor. Acts on both alpha & beta receptors and increases both heart rate and contractility. It can cause peripheral vasodilation (beta) or vasoconstriction (alpha).
Presentation	Pre-filled syringe, ampoule or auto-injector. 1 mg/1 mL (1:1,000).
Administration	Intramuscular (IM), Intravenous (IV) and Nebulisation (Neb). (*CPG:* 2/3.10.1 2/3.13.21, 4/5/6.3.2, 4/5/6.10.1, 4/5/6.11.1, 4/5/6.13.9, 5/6.13.20. 4/5/6.13.21, 5/6.14.6)
Indications	Severe allergic reaction/ anaphylaxis, Stridor, Symptomatic Bradycardia and Cardiogenic shock.
Contra-Indications	Hypersensitivity to excipients.
Usual Dosages	*Adult: Anaphylaxis* 500 mcg IM (0.5 mL of 1: 1,000). *EFR assist patient – 0.3 mg (Auto injector). (Repeat every 5 minutes PRN).* Adult: Symptomatic Bradycardia/ Cardiogenic shock (AP): 10 mcg IV/IO (Repeat PRN). (Dilute 1 mg Adrenaline in 100 mL NaCl and draw up in 1 mL syringe, administer the dose over 1 minute). (Off-license). *Anaphylaxis Paediatric:* < 6 months: 10 mcg/kg IM 6 months to < 6 years: 150 mcg (0.15 mL IM) ≥ 6 years to < 12 years: 300 mcg (0.3 mL IM) ≥ 12 years: 300 mcg (0.3 mL) (if child small or prepubital) or 500 mcg (0.5 mL IM) *EFR* assist patient – 6 months < 10 years: 0.15 mg (Auto injector) (Repeat every 5 minutes PRN). ≥ 10 years: 0.3 mg (Auto injector) (Repeat every 5 minutes PRN). *Stridor (P/ AP):* < 1 Year: 2.5 mg NEB. ≥ 1 year: 5 mg NEB. (Repeat after 30 minutes PRN). *Sepsis (AP):* Adrenaline 0.1 mcg/kg IV/IO.
Side effects	Palpitations / Tachyarrhythmias / Hypertension / Angina-like symptoms.
Additional Information	N.B. Double check the concentration on pack before use.

APPENDIX 1 - Medication Formulary

Clinical Level: AP

MEDICATION	AMIODARONE
Classification	Cardiovascular system: Antiarrhythmic agent. Class III. - Prolongs refractory period in atria and ventricles thus effective for arrhythmias of various origins. - decreases SA automaticity and conduction through AV node.
Presentation	150 mg in 3 mL solution. Pre-filled syringe of 300 mg/10 mL (30 mg/mL).
Administration	Intravenous (IV). Intraosseous. (IO). (*CPG:* 6.3.5, 4/5/6.13.23, 4/5/6.14.2).
Indications	Ventricular Fibrillation (VF) and Pulseless Ventricular Tachycardia (pVT). Symptomatic Tachycardia (> 150).
Contra-Indications	Known hypersensitivity to Iodine.
Usual Dosages	*Adult:* VF/pVT: 5 mg/Kg IV/IO over 20min – 2hours. *Loading dose for cardiac arrest:* 300 mg and one supplemental dose of 150 mg if VF persists after a minimum 15minutes. *Symptomatic tachycardia:* 150 mg - IV infusion in 100 mL Glucose 5% (D5W) over 10 minutes. *Paediatric:* VF/pVT: 5 mg/Kg IV/IO. If refractory ***VF/pVT*** post Adrenaline and 3rd shock
Side effects	Inflammation of peripheral veins/ Bradycardia/ AV conducting abnormalities. Hypotension (usually moderate/ transient) but can be severe after rapid injection.
Additional information	If diluted mix with Glucose 5% (D5W). May be flushed with NaCl 0.9%. For cardiac arrest, do not dilute prefilled syringe. Administer directly followed by a flush. For ease of use in paediatric calculations when using 150 mg in 3 mL, add 2 mL Glucose 5% (D5W) making the concentration 150 mg in 5 mL.

APPENDIX 1 - Medication Formulary

Clinical Level: CFR FAR EFR EMT P AP

MEDICATION	ASPIRIN
Classification	Antithrombotic – Antiplatelet Drug which reduces clot formation.
Presentation	300 mg dispersible tablet. 300 mg Enteric Coated (EC) tablet.
Administration	Orally (PO) - dispersed in water, or to be chewed if not dispersible form. (*CPG:* 5/6.3.1, 4.3.1, 1/2/3.3.1).
Indications	Cardiac chest pain or suspected myocardial infarction. Management of unstable angina and non ST-segment elevation myocardial infarction (NSTEMI). Management of ST-segment elevation myocardial infarction (STEMI).
Contra-Indications	Active symptomatic gastrointestinal (GI) ulcer/ Bleeding disorder (e.g. haemophilia)/ Known severe adverse reaction/ Patients < 16 years old (risk of Reye's Syndrome).
Usual Dosages	*Adult: Anaphylaxis* 300 mg Tablet. *Paediatric:* *Contraindicated.*
Side effects	Epigastric pain and discomfort/ Bronchospasm/ Gastrointestinal haemorrhage/ Increased bleeding times/ skin reactions in hypersensitive patients.
Additional information	Aspirin 300 mg is indicated for cardiac chest pain, regardless if patient is on an anti-coagulant or is already on Aspirin. If the patient has swallowed Aspirin EC (enteric coated) preparation without chewing, the patient should be regarded as not having taken any Aspirin; administer 300 mg PO.

Clinical Level: AP

MEDICATION	ATROPINE
Classification	Systemic Antimuscarinic - Anticholinergic (parasympatholytic). Competitively antagonizes acetylcholine at postganglionic nerve endings/Reverses effects of vagal overdrive/ Enhances A-V conduction/ Increases heart rate.
Presentation	Pre-filled disposable syringe 1 mg/10 mL. Pre-filled disposable syringe 0.5 mg/0.5 mL. Ampoule 600 mcg in 1 mL.
Administration	Intravenous (IV). Intraosseous (IO). (*CPG:* 5/6.2.6, 4/5/6.3.2, 5/6.9.1, 6.10.2).
Indications	*Adult:* Symptomatic bradycardia. Cholinergic poison (from Organophosphorus insecticides) with bradycardia and salivation.
Contra-Indications	Post-cardiac transplantation/ Hypersensitivity to atropine/ closed angle glaucoma/ Achalasia of the oesophagus, paralytic ileus and toxic megacolon/ **NB: not relevant in life-threatening emergencies (e.g. bradyarrhythmia, poisoning).**
Usual Dosages	*Adult:* *Cholinergic poison with bradycardia and salivation:* 1 mg IV. (Repeat at 3-5 min intervals to ensure minimal salivary secretions). *Symptomatic Bradycardia:* 0.5 mg (500 mcg) – 1 mg IV. (Repeat at 3-5 min intervals to Max 3 mg). *Paediatric:* Not indicated.
Side effects	Tachycardia/ Dry mouth/ Dilated pupils.
Additional information	Do not administer Atropine if temperature < 34oC.

Clinical Level: AP

MEDICATION	CEFTRIAXONE
Classification	Antibacterial Infections Cephalosporin.
Presentation	Ceftriaxone (as Ceftriaxone sodium) powder for solution for injection vials, 250 mg/ 1g/ 2 g for IV administration. Powder and solvent for solution for IM injection.
Administration	*IV/IO:* Reconstitute each 1 g vial in 10 mL of water for injection BP. Should be administered over 5 minutes. *Intravenous infusion:* Reconstitute 2 g of Ceftriaxone in 100 mL of one of the following calcium-free solutions: • Glucose 5% or 10%. • Sodium chloride (NaCl 0.9%). The Infusion should be administered over at least 30 minutes. *IM:* Reconstitute each 1g vial with 3.5 mL of 1% Lidocaine Hydrochloride injection and administer by deep intramuscular injection. (*CPG:* 4/5/6.8.6, 4/5/6.11.1, 4/5/6.13.18, 4/5/6.13.20).
Indications	Severe sepsis/ open fractures
Contra-Indications	Age < 1 month. Known severe adverse reaction. Hx of severe hypersensitivity (e.g. anaphylactic reaction) to any beta-lactam antibacterial (Penicillin, Cephalosporin, Aztreonam, Meropenem, Ertapenem). Ceftriaxone solutions containing Lidocaine should never be administered IV.
Usual Dosages	*Adult: Severe sepsis/ open fracture* 2 g IV/IO/IM. *Paediatric:* 1 month – 11 years: 50 mg/Kg IV/IO/IM (max daily dose 2g) > 11 years or body weight > 50 Kg: 2 g IV/IO/IM *IV injection over 2-4 minutes or deep IM injection*
Side effects	Rash/ Anaemia/ Coagulation disorder.
Additional information	Ceftriaxone ***must not*** be mixed or administered simultaneously with any calcium-containing intravenous solutions. Preferred route > 1 g by IV infusion. Intramuscular route may be used only in exceptional circumstances. *The resulting solution should never be administered intravenously.*

Clinical Level: EMT P AP

MEDICATION	CHLORPHENAMINE
Classification	Sedating Antihistamine – H1 receptor antagonist.
Presentation	10 mg in 1 mL ampoule. 4 mg tablet.
Administration	Intravenous (IV), Intramuscular (IM) and Orally (PO). (*CPG:* 4/5/6.10.1, 4/5/6.13.21).
Indications	Anaphylaxis or allergic reaction.
Contra-Indications	**Known severe adverse reaction/ Pre-coma states.**
Usual Dosages	**For IV route, administer over 1 minute** **IV: May dilute with Sodium Chloride 0.9% for convenient administration volume of small doses.** *Adult:* *Allergic reaction* *Mild: 4 mg PO (EMT / P / AP).* *Moderate: 4 mg PO or 10 mg IM (EMT / P) or 10 mg IV (AP). Severe/Anaphylaxis: 10 mg IM (EMT / P) or 10 mg IV (AP).* *Paediatric:*

Severity	Age	Dose and route of administration
Mild	6 to 11 years	2 mg PO (EMT / P / AP)
	≥ 12 years	4 mg PO (EMT / P / AP)
Moderate	1 month - 6 months	0.25 mg/kg IM (EMT / P) or 0.25 mg/kg IV (AP)
	> 6 months - < 6 years	2.5 mg IM (EMT / P) or 2.5 mg IV (AP)
	6 to < 12 years	2 mg PO or 5 mg IM (EMT / P) or 5 mg IV (AP).
	≥ 12 years	4 mg PO or 10 mg IM (EMT / P) or 10 mg IV (AP)
Severe	1 month - 6 months	0.25 mg/kg IM (EMT / P) or 0.25 mg/kg IV (AP)
	> 6 months - < 6 years	2.5 mg IM (EMT / P) or 2.5 mg IV (AP)
	6 to < 12 years	5 mg IM (EMT / P) or 5 mg IV (AP)
	≥ 12 years	10 mg IM (EMT / P) or 10 mg IV (AP

Side effects	Causes drowsiness, do not drive or operate machinery.
Additional information	Use with caution in epilepsy/ Prostatic hypertrophy/ Glaucoma/ Hepatic disease/ Bronchitis/ Bronchiectasis/ Thyrotoxicosis/ Raised intra-ocular pressure/ Severe hypertension/ Cardiovascular disease/ Bronchial asthma.

Clinical Level: P AP

MEDICATION	CLOPIDOGREL
Classification	Antiplatelet: Platelet aggregation inhibitor.
Presentation	300 mg tablet. 75 mg tablet.
Administration	Orally (PO). (*CPG:* 5/6.3.1).
Indications	ST elevation myocardial infarction (STEMI) if the patient is not for PCI.
Contra-Indications	Known severe adverse reaction/ Active pathological bleeding/ Severe liver impairment.
Usual Dosages	*Adult:* 300 mg PO. (≥ 75 years: 75 mg PO). *Paediatric:* Not indicated.
Side effects	Abdominal pain/ Dyspepsia/ Diarrhoea/ Bleeding.
Additional information	*If a patient has been loaded with an anti-platelet medication (other than Aspirin), prior to the arrival of the practitioner, the patient should not have Clopidogrel administered.*

Clinical Level: P AP

MEDICATION	CYCLIZINE
Classification	Antiemetic & Anti-nausea. Antihistamine with antimuscarinic effect.
Presentation	Used in management of nausea & vomiting.
Administration	Intravenous (IV). Intraosseous (IO). Intramuscular (IM). Subcutaneous (SC). (*CPG:* 5/6.5.5, 4/5/6.12.1, 5/6.15.2).
Indications	Management, prevention and treatment of nausea and vomiting.
Contra-Indications	Known severe adverse reaction.
Usual Dosages	*Adult:* 50 mg slow IV/IO or IM. *Palliative Care:* 50 mg SC. (Repeat x 1 PRN - AP). *Paediatric:* Not indicated.
Side effects	Tachycardia/ Dry Mouth/ Sedation.
Additional information	IM route should only be utilised where IV or IO access is not available. **IV formulation only:** Blisters at the site of injection and pruritus, as well as sensation of heaviness, chills, agitation, flushing and hypotension have been reported. Rapid IV administration can lead to symptoms similar to overdose.

Clinical Level: P AP

MEDICATION	DEXAMETHASONE
Classification	Corticosteroid – systemic. Drug with high glucocorticoid activity and insignificant mineralocorticoid activity.
Presentation	2 mg Tablet Dexamethasone. 2 mg/ 5 mL oral solution.
Administration	Oral (PO).
Indications	Severe croup. (*CPG:* 4/5/6.13.9).
Contra-Indications	Systemic infection unless specific anti-infective therapy is employed/ Hypersensitivity to any ingredient/ gastric and duodenal ulcer/ vaccination with live vaccines/ patients with rare hereditary problems of galactose intolerance, the Lapp lactase deficiency or glucose-galactose malabsorption should not take this medicine.
Usual Dosages	*Adults:* Not indicated. *Paediatric:* 300 mcg (0.3 mg)/ kg PO (Maximum dose = 12 mg).
Side effects	Hiccups/ Hyperglycaemia/ MI rupture/ Protein catabolism.
Additional information	Medication Safety: All doses are stated in terms of Dexamethasone.

Clinical Level: AP

MEDICATION	DIAZEPAM INJECTION
Classification	Hypnotics, sedatives and anxiolytics: Benzodiazepine. CNS depressant that acts as an anticonvulsant and sedative.
Presentation	Ampoule 10 mg in 2 mL.
Administration	Intravenous (IV). Intraosseous (IO). (*CPG:* 5/6.6.3, 5/6.13.14).
Indications	Seizure.
Contra-Indications	Known severe adverse reaction/ Respiratory depression/ Shock/ Depressed vital signs or alcohol-related altered level of consciousness.
Usual Dosages	*Adult:* 5 mg IV/IO. *Paediatric:* > 1 month: 0.1 mg/kg IV/IO. Maximum 4 doses of Benzodiazepine for adult and paediatric patients regardless of route.
Side effects	Hypotension/ Respiratory depression/ Drowsiness and light-headedness (the next day). Confusion and ataxia (especially in the elderly)/ Amnesia/ Dependence/ Paradoxical increase in aggression and muscle weakness. Specific side effects with IV route (rare): Psychiatric disorder.
Additional information	Diazepam IV should be titrated to effect. Can cause injection site reactions/thrombophlebitis, ensure large vein is used. The maximum dose of Diazepam includes that administered by carer prior to arrival of practitioner. If a patient recommences seizing, regard it as a new event, administer one dose of Benzodiazepine, then consult medical advice.

Clinical Level: AP

MEDICATION	DIAZEPAM RECTAL SOLUTION
Classification	Hypnotics, sedatives and anxiolytics: Benzodiazepine. CNS depressant that acts as an anticonvulsant and sedative.
Presentation	*Rectal tube:* Available as: 2.5 mg/ 1.25 mL (2 mg/mL). 5 mg/ 2.5 mL (2 mg/mL). 10 mg/ 2.5 mL (4 mg/mL).
Administration	Per Rectum (PR). (*CPG*: 5/6.6.3, 5/6.13.14).
Indications	Seizure.
Contra-Indications	Known severe adverse reaction / Respiratory depression / Shock / Depressed vital signs or alcohol related altered level of consciousness.
Usual Dosages	*Adult:* 10 mg (PR). *Paediatric:* **Age** / **Dose** ≥ 1 month - < 2 years: 5 mg (PR). ≥ 2 years - < 12 years: 5 -10 mg (PR) ≥ 12 years: 10 mg (PR). **Repeated after 5-10minutes if required** Maximum 4 doses of Benzodiazepine for adult and paediatric patients regardless of route.
Side effects	Hypotension/ Respiratory depression/ Drowsiness and light-headedness (the next day)/ Confusion and ataxia (especially in the elderly)/ Amnesia/ Dependence/ Paradoxical increase in aggression and muscle weakness.
Additional information	Be aware of modesty of patient. Should be administered in the presence of a 2nd person. Egg and soya proteins are used in the manufacture of Diazepam Rectal Solution; allergies to these proteins may be encountered. The maximum dose of Diazepam includes that administered by carer prior to arrival of practitioner. If a patient recommences seizing, regard it as a new event, administer one dose of Benzodiazepine, then consult medical advice.

Clinical Level: AP

MEDICATION	FENTANYL
Classification	Analgesics - Opioids.
Presentation	Ampoule 100 mcg in 2mL (0.1mg in 2mL).
Administration	Intranasal (IN). Intramuscular (IM). Intravenous (IV). Intraosseous (IO). (*CPG:* 4/5/6.6.2, 6.6.5, 4/5/6.13.13, 6.13.27).
Indications	Procedural sedation/ Acute severe pain.
Contra-Indications	< 1-year-old/ Known Fentanyl hypersensitivity/ ALoC/ Bilateral occluded nasal passage/ Nasal trauma/ Epistaxis/ Hypovolaemia.
Usual Dosages	*Adult:* *Pain* 100 mcg IN (Repeat by one at not < 10 minutes if severe pain persists). 50 mcg IV. *Procedural Sedation (AP only).* 25-50 mcg IV (repeatable at > 5min intervals). 50mcg IN/IM (repeatable at >5 min intervals). *Paediatric > 1 year (≥ 10 kgs):* *Pain* 1.5 mcg/kg IN. (max 100 mcg). *(Repeat by one at not < 10 minutes only if severe pain persists).* *Procedural Sedation (AP only).* 0.75mcg/kg IV/IO (repeatable at > 5 min interval). 0.75mcg/kg IN (repeatable at > 5 min interval).
Side effects	Sedation/ Nausea/ Vomiting/ Respiratory depression.
Additional information	*Caution if patient has transdermal Fentanyl patch* Include an additional 0.1 mL, to allow for dead space in the mucosal atomisation device (MAD), in the calculated volume required. Administer 50% volume in each nostril if more than 1 mL. Following Fentanyl IN, the next dose may be either Fentanyl or Morphine IV, but not both. (Adults) In the absence of acquiring IV access, a second dose of IN Fentanyl may be administered. **Controlled under Schedule 2 of the Misuse of Drugs Regulations 1988 (S.I. No. 328 of 1988).**

APPENDIX 1 - Medication Formulary

Clinical Level: AP

MEDICATION	FUROSEMIDE INJECTION
Classification	Diuretic: Loop diuretic.
Presentation	Ampoule 10 mg per mL. 2 mL, 5 mL and 25 mL per ampoule.
Administration	Intravenous (IV). (CPG: 5/6.2.6).
Indications	Pulmonary oedema.
Contra-Indications	Pregnancy/ Known Hypokalaemia. Known severe adverse reaction.
Usual Dosages	*Adult:* 40 mg slow IV (at a maximum rate of 4mg/min). (2.5mg/min in severe renal impairment). *Paediatric:* Not indicated.
Side effects	Headache / Dizziness / Hypotension / Arrhythmias / Transient deafness – usually associated with rapid IV administration / Diarrhoea / Nausea and Vomiting / Electrolyte imbalance.
Additional information	Furosemide should be protected from light.

Clinical Level: EMT P AP

MEDICATION	GLUCAGON
Classification	Hypoglycaemia: Glycogenolytic Hormones.
Presentation	1 mg vial powder and solution for reconstitution (1 mL).
Administration	Intramuscular (IM). (*CPG*: 4/5/6.5.3, 4/5/6.13.11).
Indications	Hypoglycaemia in patients unable to take oral glucose or unable to gain IV access, with a blood glucose level < 4 mmol/L.
Contra-Indications	< 1 month/ Phaechromocytoma/ Known Severe Adverse Reactions
Usual Dosages	*Adult:* 1 mg IM. *Paediatric:* ≥ 1 month and < 25kg: 500 mcg IM. ≥ 1 month and ≥ 25kg: 1 mg IM.
Side effects	Common: Nausea. Uncommon: Vomiting. Rare: may cause Hypotension/ Dizziness/ Headache.
Additional information	May be ineffective in patients with low stored glycogen e.g. prior use in previous 24 hours, alcohol dependent patients with liver disease. Store in refrigerator. Stable at room temperature for 18 months, use immediately once reconstituted. Protect from light. Hypoglycaemic paediatric patients who are not diagnosed as diabetic should not be administered Glucagon. (this does not preclude the administration of glucose gel or glucose solution to treat hypoglycaemia).

Clinical Level: P AP

MEDICATION	GLUCOSE 10% SOLUTION
Classification	Fluid and Electrolyte Imbalances: Carbohydrate.
Presentation	Soft pack for infusion 250 mL and 500 mL.
Administration	Intravenous (IV) Infusion/bolus. Intraosseous (IO). *Paramedic:* Maintain infusion once commenced. (*CPG*: 4/5/6.5.3, 4/5/6.13.11).
Indications	Hypoglycaemic Emergency. Blood glucose level < 4 mmol/L.
Contra-Indications	Known severe adverse reaction.
Usual Dosages	*Adult:* 250 mL IV/IO infusion (repeat x 1 PRN). *Paediatric:* 5 mL/kg IV/IO (Repeat x 1 PRN).
Side effects	Necrosis of tissue around IV access.
Additional information	Cannula patency will reduce the effect of tissue necrosis. Advanced paramedics should use as large a vein as possible.

Clinical Level: P AP

MEDICATION	GLUCOSE 5% SOLUTION
Classification	Fluid and Electrolyte Imbalances: Carbohydrate.
Presentation	Soft pack for infusion 100 mL and 500 mL.
Administration	Intravenous (IV) infusion. Intraosseous (IO) infusion. *Paramedic:* Maintain infusion once commenced. (*CPG*: May be used for medication dilution on CPGs).
Indications	Use as a dilutant for Amiodarone infusion.
Contra-Indications	Known severe adverse reaction.
Usual Dosages	*Adult:* **Dilute appropriate dose of Amiodarone in 100 mL Glucose 5% solution.** *Paediatric:* **Not indicated.**
Side effects	Necrosis of tissue around IV access.

Clinical Level: EFR EMT P AP

MEDICATION	GLUCOSE GEL
Classification	Nutrients. Sugars: Antihypoglycaemic.
Presentation	Glucose gel in a tube or sachet.
Administration	Buccal administration: Administer gel to the inside of the patient's cheek and gently massage the outside of the cheek. (*CPG*: 4/5/6.5.3, 4/5/6.12.7 4/5/6.13.11).
Indications	Hypoglycaemia. Blood glucose < 4 mmol/L.
Contra-Indications	Known severe adverse reaction.
Usual Dosages	*Adult:* 10 – 20 g buccal (Recheck blood glucose and repeat after 15 min if required). *Paediatric:* New-born neonate: 2 - 4 mL if blood glucose ≤ 2.6 mmol/L. ≤ 8 years: 5 – 10 g buccal (recheck blood glucose and repeat after 15 mins if required). > 8 years: 10 – 20 g buccal (recheck blood glucose and repeat after 15 mins if required).
Side effects	May cause vomiting in patients under the age of 5 years if administered too quickly.
Additional information	Glucose gel will maintain glucose levels once raised but should be used secondary to Dextrose to reverse hypoglycaemia. *Proceed with caution:* Patients with airway compromise. Altered level of consciousness.

APPENDIX 1 - Medication Formulary

Clinical Level: EFR EMT P AP

MEDICATION	GLYCERYL TRINITRATE (GTN)
Classification	Nitrate. Potent coronary vasodilator/ reduces BP/ Dilation of systemic veins.
Presentation	*Aerosol spray:* Metered dose of 400 mcg.
Administration	*Sublingual:* Hold the pump spray vertically with the valve head uppermost. Place as close to the mouth as possible and spray under the tongue. The mouth should be closed immediately after each dose. (*CPG*: 4/5/6.2.6, 4/5/6.3.1, 1/2/3.3.1).
Indications	Angina/ suspected myocardial infarction (MI). *EFR:* may assist with administration. *EMT:* Angina/ suspected myocardial infarction (MI) with systolic BP ≥110 mmHg. *Advanced Paramedics and Paramedics* - Pulmonary oedema
Contra-Indications	SBP < 90 mmHg/ Viagra or other phosphodiesterase type 5 inhibitors (Sildenafil, Tadalafil and Vardenafil) used within previous 24 hours/ Severe mitral stenosis/ Known severe adverse reaction.
Usual Dosages	*Adult:* *Angina or MI:* 400 mcg sublingual. (Repeat at 3-5 min intervals, Max: 1200 mcg). *EFR:* assist administration - 400 mcg sublingual max. *Pulmonary oedema:* 800 mcg/ 2 sprays (repeat x 1 PRN) (P & AP). *Paediatric:* **Not indicated.**
Side effects	Headache/ Transient Hypotension/ Flushing/ Dizziness.
Additional information	Caution with inferior wall MI with right ventricular involvement as this may lead to profound hypotension. If the pump is new or it has not been used for a week or more the first spray should be released into the air.

Clinical Level: AP

MEDICATION	GLYCOPYRRONIUM BROMIDE
Classification	Systemic Antimuscarinics.
Presentation	Ampoule 200 mcg/mL.
Administration	Subcutaneous (SC). (*CPG*: 5/6.15.2).
Indications	Palliative care with excessive oropharyngeal secretions.
Contra-Indications	Known severe adverse reaction.
Usual Dosages	*Adult:* 200 mcg SC. *Paediatric:* Not applicable.
Side effects	Tachycardia/ Pupil dilation/ Photophobia/ Flushing.
Additional information	For patients receiving palliative care administer their doctor's prescribed dose if known.

Clinical Level: AP

MEDICATION	HALOPERIDOL
Classification	Antipsychotic.
Presentation	Ampule 5 mg/mL. Capsule 0.5 mg (PO).
Administration	Subcutaneous (SC). Oral (PO). (***CPG***: 5/6.15.2).
Indications	Palliative care with nausea and vomiting or agitation/ delirium.
Contra-Indications	Known severe adverse reaction.
Usual Dosages	*Adult:* Agitation/ Delirium: 1 – 2 mg SC/PO. Nausea/ Vomiting: 0.5 – 1 mg SC. *Paediatric* Not applicable.
Side effects	Insomnia / Agitation / Hyperkinesia / Headache.
Additional information	For agitation/ delirium, consider Midazolam in addition only if severe agitation. For patients receiving palliative care administer their doctor's prescribed dose if known.

Clinical Level: P AP

MEDICATION	HYDROCORTISONE
Classification	Systemic Corticosteroid and anti-inflammatory.
Presentation	Powder and solvent for solution for injection or infusion. Vial containing off-white powder and vial containing water for injections. Prepare the solution aseptically by adding not more than 2 mL of sterile water for injections to the contents of one 100 mg vial, shake and withdraw for use.
Administration	Intravenous (IV infusion). Intramuscular (IM). The preferred route for initial emergency use is intravenous. (*CPG:* 4/5/6.2.4, 4/5/6.2.5, 5/6.5.1, 4/5/6.10.1, 4/5/6.13.8, 5/6.13.10, 4/5/6.13.21).
Indications	Severe or recurrent anaphylactic reactions. Asthma refractory to Salbutamol and Ipratropium Bromide. Exacerbation of COPD (AP). Adrenal insufficiency (P).
Contra-Indications	No major contraindications in acute management of anaphylaxis.
Usual Dosages	*Adult:* *Infusion over 20-30 minutes* *Anaphylactic reaction:* (AP) 200 mg IV (infusion in 100 mL NaCl) or IM injection (P/AP). *Exacerbation of COPD:* 200 mg IV (AP) (infusion in 100 mL NaCl) or IM (P/AP). *Asthma:* 100 mg slow IV (infusion in 100 mL NaCl) (AP). *Adrenal insufficiency:* (AP) 100 mg IV (infusion in 100 mL NaCl) or IM (P/AP). Paediatric: *Infusion over 20-30 minutes* *Anaphylactic reaction:*

< 6 months	(AP) - 25 mg IV (infusion in 100 mL NaCl) or IM (P/AP).
≥ 6 months - < 6 years:	(AP) - 50 mg IV (infusion in 100 mL NaCl) or IM (P/AP).
≥ 6 years - < 12 years:	(AP) - 100 mg IV (infusion in 100 mL NaCl) or IM (P/AP).
≥ 12 years	(AP) - 200 mg IV (infusion in 100 mL NaCl) or IM (P/AP).

Asthma: (AP) < 1 year: 25 mg IV/ 1 - 5 years: 50 mg IV/ > 5 years: 100 mg IV (infusion in 100 mL NaCl).

Adrenal insufficiency:
6 months - 5 years: 50 mg IV (AP) infusion in 100 mL NaCl or IM injection (P/AP).
≥ 5 years: 100 mg IV (AP) infusion in 100 mL NaCl or IM injection (P/AP).

MEDICATION	HYDROCORTISONE
Pharmacology / Action	Potent anti-inflammatory properties and inhibits many substances that cause inflammation.
Side effects	CCF/ Hypertension/ Abdominal distension/ Vertigo/ Headache/ Nausea/ Malaise and hiccups.
Additional information	Intramuscular injection should avoid the deltoid area because of the possibility of tissue atrophy. Dose should not be less than 25 mg IV is the preferred route for adrenal crisis. If the patient, in an adrenal crisis, is still unwell following Hydrocortisone administration prior to arrival of the practitioner the standard dose of Hydrocortisone should be administered.

Clinical Level: AP

MEDICATION	HYOSCINE BUTYLBROMIDE
Classification	Systemic Antimuscarinics. Reduction of secretions in palliative care.
Presentation	Ampoule 20 mg/mL.
Administration	Subcutaneous (SC). (*CPG*: 5/6.15.2).
Indications	Palliative care with excessive oropharyngeal secretions.
Contra-Indications	Known severe adverse reaction.
Usual Dosages	*Adult:* 10 – 20 mg SC. *Paediatric:* Not applicable.
Side effects	Tachycardia/ Pupil dilation/ Photophobia/ Flushing.
Additional information	For patients receiving palliative care administer their doctor's prescribed dose if known.

Clinical Level: EMT P AP

MEDICATION	IBUPROFEN
Classification	Analgesics: Non-Steroidal Anti-Inflammatory Drugs (NSAIDs). Pain and Inflammation in musculoskeletal disorders.
Presentation	Suspension 100 mg in 5 mL and 200 mg in 5 mL. 200 mg, 400 mg tablets.
Administration	Orally (PO). (CPG: 4/5/6.6.2, 4/5/6.13.13).
Indications	Mild to moderate pain.
Contra-Indications	Not suitable for children under 3 months (or body weight < 5kg)/ Patient with history of asthma exacerbated by Aspirin/ Pregnancy/ Peptic ulcer disease/ Known renal failure/ Known severe liver failure/ Known severe heart failure/ Concurrent NSAID use (e.g. Diclofenac, Naproxen)/ Known severe adverse reaction / suspected or confirmed chicken pox.
Usual Dosages	*Adult:* 400 mg PO (Mild pain). 600 mg PO (Moderate pain). *Paediatric:* 10 mg/kg PO to a maximum of 400 mg.
Side effects	Skin rashes/ Gastrointestinal intolerance and bleeding.
Additional information	If Ibuprofen administered in previous 6 hours, adjust the dose downward by the amount given by other sources resulting in a maximum of 10 mg/kg or 400 mg for paediatrics. Caution with significant burns or poor perfusion due to risk of kidney failure. Caution if on oral anticoagulant (e.g. Warfarin, Rivaroxaban, Apixaban, Edoxaban) due to increased bleeding risk. Ibuprofen may be combined with Paracetamol for synergic effect. Ibuprofen should not be administered to children with a suspected or confirmed chicken pox diagnosis.

Clinical Level: P AP

MEDICATION	IPRATROPIUM BROMIDE
Classification	Inhaled Antimuscarinic: Airways disease, Obstructive.
Presentation	Nebuliser Solution 250 mcg in 1 mL. (0.25 mg/mL).
Administration	Nebulised (NEB) mixed with age specific dose of Salbutamol. (*CPG*: 4/5/6.2.4, 4/5/6.2.5, 4/5/6.13.8).
Indications	Acute moderate asthma or exacerbation of COPD not responding to initial Salbutamol dose.
Contra-Indications	Known severe adverse reaction.
Usual Dosages	*Adult:* 500 mcg NEB (Max 2mg/24 hours). *Paediatric:* < 12 years: 250 mcg NEB (Max 1mg/24 hours). ≥ 12 years: 500 mcg NEB (Max 2mg/24 hours).
Side effects	Transient dry mouth/ Blurred vision/ Tachycardia/ Headache.

Clinical Level: AP

MEDICATION	KETAMINE
Classification	Anaesthetics, General > NMDA receptor antagonists.
Presentation	Clear, colourless, aqueous solution. Vial concentration 10mg/mL.
Administration	Intravenous (IV). Intraosseous (IO). (*CPG*: 4/5/6.6.2, 6.6.5, 4/5/6.13.13, 6.13.27).
Indications	*Adult and Paediatric:* Severe pain/ Procedural sedation.
Contra-Indications	Acute porphyrias/ Pre-eclampsia/ Eclampsia/ Hypertension/ Severe cardiac disease/ Stroke/ Known Severe Adverse Reactions. **Relative contra-indication:** Caution with head trauma.
Usual Dosages	**Note! Doses resulting in a volume < 1 ml should be diluted up to 1 ml using NaCL 0.9% to facilitate administration over 60 – 120 seconds** *Adult:* **Pain management** 0.1 – 0.3 mg/kg IV over 60 – 120 seconds (repeat if required PRN, not < 10 minutes). **Procedural Sedation** 0.5 – 1 mg/kg IV over 60 – 120 seconds (repeatable at > 10 min intervals). 5mg/kg IM *Paediatric: > 12 months* **Pain management** 0.1 – 0.3 mg/kg IV over 60 – 120 seconds (repeat once only at not < 10 minutes PRN). **Procedural Sedation** 0.5 – 1 mg/kg IV/IO over 60 – 120 seconds (repeatable at >10min intervals). 4 – 5 mg/kg IM.
Pharmacology / Action	Induces sedation, immobility amnesia, and marked analgesia.
Side effects	Diplopia/ Hallucinations / Hypertension/ Nausea and Vomiting / Tachycardia / Transient psychotic effects. *Uncommon:* Arrhythmias/ Bradycardia/ Hypotension/ Laryngospasm/ Respiratory depression.
Additional information	Incidents of hallucinations, nightmares, and other psychotic effects can be reduced by a Benzodiazepine such as Diazepam or Midazolam. Reduces Morphine requirements. Has low frequency of serious side effects in doses used for analgesia. Allows patients to maintain their pharyngeal reflexes and maintain their own airway. **Controlled under Schedule 3 to the Misuse of Drugs Regulations 1988 (S.I. No. 328 of 1988). Ketamine is classified as CD3 but PHECC classify as CD2 - safe custody and appropriate record keeping rules apply.**

Clinical Level: AP

MEDICATION	LIDOCAINE
Classification	Antiarrhythmic Class 1B. Ventricular Arrhythmias.
Presentation	Lidocaine injection Mini jet 1% w/v 100 mg per 10 mL. Ampoule 1% Lidocaine 50 mg/ 5 mL 1%.
Administration	Intravenous (IV). Intraosseous (IO). (*CPG:* 4/5/6.6.2, 4/5/6.13.13, 4/5/6.13.23).
Indications	1. When Amiodarone is unavailable it may be substituted with Lidocaine for VF/ pVT arrests - (Special authorisation required). 2. Solvent for Ceftriaxone IM. 3. Pain management.
Contra-Indications	No contraindications for cardiac arrest. KSAR when used as a dilutant for Ceftriaxone.
Usual Dosages	*Adult:* 1. 100 mg IV. 2. Solvent 3.5 mL for Ceftriaxone IM. 3. Lidocaine 1%, 40 mg IO over 2 minutes. Wait 1 min, 2nd dose Lidocaine 1% 20 mg over 1 min. (supplementary dose of lidocaine 1% 20mg x 1 PRN no sooner than ≥ 45 mins). *Paediatric:* 1. 1 - 1.5 mg/kg IV. 2. Solvent 3.5 mL for Ceftriaxone IM. 3. Lidocaine 1% 500 mcg/kg (max 40mg) IO over 2 minutes. Wait one minute, 2nd dose 250 mcg/kg (max 20mg) IO over 1 minute. Total max 60mg.
Side effects	Drowsiness/ Dizziness/ Twitching/ Paraesthesia/ Convulsions/ Bradycardia/ Respiratory depression.
Additional information	**Lidocaine may not be administered if Amiodarone has been administered.**

Clinical Level: AP

MEDICATION	LORAZEPAM
Classification	Hypnotics, Sedatives and Anxiolytics: Benzodiazepine.
Presentation	1 mg tablet.
Administration	Orally (PO). (*CPG*: 4/5/6.7.2).
Indications	Combative with hallucinations or paranoia and risk to self or others – Behavioural emergency. Procedural sedation.
Contra-Indications	History of sensitivity to Benzodiazepines/ Severe hepatic or pulmonary insufficiency/ Suspected significant alcohol and/or sedatives ingested/ KSAR.
Usual Dosages	*Adult:* 2 mg PO (repeat x 1PRN). *Paediatric:* Not indicated.
Side effects	Drowsiness/ Confusion/ Headache/ Dizziness/ Blurred vision/ Nausea and Vomiting. *On rare occasions:* Hypotension/ Hypertension.
Additional information	Must seek medical advice prior to administration.

Clinical Level: AP

MEDICATION	MAGNESIUM SULPHATE INJECTION
Classification	Hypomagnesaemia: Electrolyte and Minerals. Tocolytic agent.
Presentation	Ampoule 5g in 10 mL,1g in 2 mL.
Administration	Intravenous (IV). Intraosseous (IO). (*CPG:* 4/5/6.2.5, 4/5/6.3.6, 5/6.6.3 4/5/6.12.1, 4/5/6.12.6).
Indications	Life-threatening Asthma/ Torsades de pointes/ Persistent bronchospasm/ Seizure associated with eclampsia.
Contra-Indications	None in cardiac arrest. Known severe adverse reaction.
Usual Dosages	*Adult:* *Life-threatening Asthma:* 2 g IV (infusion in 100 mL NaCl) given over 20 minutes. *Tachycardia – Irregular:* Torsades de Pointes with a pulse: 2 g IV (infusion in 100mL NaCl) given over 15 minutes. *Persistent bronchospasm:* 2 g IV (infusion in 100 mL NaCl) given over 20 minutes. *Seizure associated with pre-eclampsia:* 4 g IV (infusion in 100 mL NaCl) given over 30 minutes. *Paediatric:* Not indicated.
Side effects	Side-effects are rare. Bradycardia can occur during administration; this can be minimised by slowing the rate of infusion. Signs of overdose include: Arrhythmias/ Coma/ Confusion/ Drowsiness/ Flushing of skin/ Hypotension/ Decreased deep tendon reflexes/ Muscle weakness/ Nausea/ Respiratory depression/ Thirst/ Vomiting.
Additional information	5 g in 10 mL is equivalent to 20 mmol/mg. Compatible with glucose 5% or Sodium Chloride 0.9%. Must be diluted prior to IV administration. Max concentration must not exceed 20% (200mg/mL). Monitoring requirements: BP, Respiratory rate, Urinary output and signs of overdose.

Clinical Level: EMT P AP

MEDICATION	METHOXYFLURANE
Classification	Anaesthetics. General: Volatile anaesthetic agent.
Presentation	3 mL vial with a tear off tamper-evident seal which is administered via carbon inhalation vapouriser.
Administration	Inhaled (INH) through an activated Carbon Chamber (self-administered). (*CPG:* 4/5/6.6.2, 4/5/6.13.13).
Indications	*Adult:* Moderate to severe pain. *Paediatric:* Moderate to severe pain.
Contra-Indications	< 5 years old Altered LOC due to head injury, drugs or alcohol/ Cardiovascular instability/ Respiratory depression/ Renal Failure or Impairment/ Known Severe Adverse Reactions/ Malignant Hyperthermia.
Usual Dosages	*Adult:* 3 mL (INH) (repeat x 1 only PRN). *Paediatric:* 3 mL (INH) (repeat x 1 only PRN).
Side effects	Amnesia/ Anxiety/ Depression/ Dizziness/ Dysarthria/ Dysgeusia/ Euphoria/ Headache/ Sensory neuropathy/ Somnolence/ Hypotension/ Coughing/ Dry mouth/ Nausea/ Feeling drunk/ Sweating. *Uncommon:* Tingling or numbness to hands and feet/ Tiredness/ Mouth discomfort.
Additional information	Patients with pain due to acute coronary syndrome (ACS) or migraine may not be suitable for Methoxyflurane. Methoxyflurane crosses the placenta. Consider the risk of central nervous system (CNS) and respiratory depression in an already compromised foetus. Methoxyflurane has a mildly pungent odour. If used in a confined space request the patient to inhale and exhale through the inhaler tube while ensuring that the activated Carbon Chamber is attached.

Clinical Level: P AP

MEDICATION	MIDAZOLAM SOLUTION
Classification	Hypnotics, Sedatives and Anxiolytics: Benzodiazepine.
Presentation	*Ampoule:* 10 mg in 2 mL or 10 mg in 5 mL. *Pre-filled buccal administration oral syringe:* 2.5 mg in 0.5 mL/ 5 mg in 1 mL/ 7.5 mg in 1.5 mL/ 10 mg in 1 mL/ 10 mg in 2 mL.
Administration	Buccal/ IN/ IM/ IV/ IO. Intranasal (IN) (50% in each nostril). **Adults:** The IV injection of midazolam should be given at a slow rate of approximately 1mg per 30 seconds. **Children:** The initial IV dose of midazolam should be administered over 2-3 minutes. (*CPG:* 5/6.6.3, 6.6.5, 4/5/6.7.2, 5/6.13.14, 6.13.27, 5/6.15.2).
Indications	Seizures/ Combative with hallucinations or paranoia and risk to self or others / Sedation (following medical advice).
Contra-Indications	Shock / Respiratory depression / KSAR / Depressed vital signs or alcohol-related altered level of consciousness.
Usual Dosages	*Adult:* *Seizure:* 10 mg buccal, 5 mg IN or 5 mg IM (P/AP). 2.5 mg IV/IO (AP). *Palliative Care:* 2.5 mg SC (AP) Alternatively 2.5 - 5 mg buccal (P/AP) repeat x 1PRN. *Behavioural Emergency:* AP - Seek medical advice regarding sedation. 5mg IN/IM - (repeat x 2 PRN) (AP). *Procedural Sedation:* 1 - 2.5mg IV. Repeatable at >5mins intervals. 5mg IM/IN repeatable at >15min intervals. *Paediatric:* *Seizure:* < 3 months: 0.3mg/kg (max 2.5mg) Buccal > 3 months – 1 year: 2.5mg Buccal 1 year to < 5 years: 5mg Buccal 5 years to < 10 years: 7.5mg Buccal 10 years to < 18 years: 10mg Buccal Or 0.2 mg/Kg IN (P & AP) or 0.1 mg/Kg IV/IO (AP). Maximum 4 doses of Benzodiazepine for adult and paediatric seizing patients regardless of route. Repeat at not < 5 minutes PRN. *Procedural Sedation:* **(with morphine): 25 mcg/kg IV/IO Repeatable at >5 min intervals.** **(with Fentanyl/Ketamine): 25 mcg/kg IV/IO repeatable at >5 min intervals.** **(Dose for All Options): 25 mcg/kg IN/IM**
Side effects	Respiratory depression/ Headache/ Hypotension/ Drowsiness.
Additional information	Midazolam IV should be titrated to effect. Ensure Oxygen and resuscitation equipment are available prior to administration. Practitioners should take into account the dose administered by carers prior to arrival of practitioner. Contraindications, other than KSAR, refer to non-seizing patients. If patient recommences seizing, regard it as a new event and administer additional dose then consider medical advice.

Clinical Level: AP

MEDICATION	MORPHINE SULPHATE
Classification	Analgesics Opiates.
Presentation	Ampoule 10 mg in 1 mL (dilute in 9 mL of NaCl). Oral Suspension 10 mg in 5 mL.
Administration	IV/ IO/ PO/ IM. (*CPG*: 4/5/6.6.2, 6.6.5, 4/5/6.13.13, 6.13.27, 5/6.15.2).
Indications	*Adult* Severe pain / Palliative care / Procedural sedation. *Paediatric:* Severe pain/ Procedural Sedation.
Contra-Indications	PO < 1-year-old/ Labour pains/ Acute respiratory depression/ Acute intoxication/ Systolic BP < 90 mmHg/ Known severe adverse reaction.
Usual Dosages	*Adult pain:* 4 mg IV - initial dose. Repeat Morphine 2 mg at not < 2 min intervals PRN (Max 16 mg). For musculoskeletal pain Max 20 mg. *Adult Procedural Sedation* 2 – 4 mg IV. Repeat dose >5 minute intervals. 5 mg IM. Repeat dose >10 minute intervals. *Adult Palliative Care:* 2.5 - 5 mg SC (repeat x 1 PRN) Alternatively 5 - 10 mg PO (repeat x 1 PRN).. *Paediatric pain:* 300 mcg/kg PO (Max 10 mg) (>1 year). 50 mcg/Kg IV bolus administered over at least 5 mins. Repeat at not < 2 min PRN to Max of 0.1 mg/Kg IV. *Paediatric Procedural sedation:* 100mcg/kg IV/IO – repeat at > 5 min interval. 100mcg/kg IM – repeat at > 10 min interval.
Side effects	Respiratory depression/ Drowsiness/ Nausea and vomiting/ Constipation.
Additional information	Use with extreme caution particularly with elderly/young. Caution with acute respiratory distress. Caution with reduced GCS. **N.B. Controlled under Schedule 2 of the Misuse of Drugs Regulations 1988 (SI. no 328).**

APPENDIX 1 - Medication Formulary

Clinical Level: EMT P AP

MEDICATION	NALOXONE
Classification	Opioid toxicity: Opioid receptor antagonist. The management and reversal of opiate overdose.
Presentation	Ampoules 400 mcg/mL (0.4 mg in 1 mL) / Minijet syringe.
Administration	IV / IO / IM / SC / IN. (*CPG*: 6.10.2, 4/5/6.12.7, 4/5/6.13.7 4/5/6.14.6).
Indications	Inadequate respiration and/or ALoC following known or suspected narcotic overdose.
Contra-Indications	**Known severe adverse reaction.**
Usual Dosages	*Adult:* 400 mcg IV/IO (AP) (repeat after 3 min PRN to a Max dose of 2 mg). 400 mcg IM/SC (P) (repeat after 3 min PRN to a Max dose of 2 mg). 800 mcg IN (EMT) (repeat x 1 after 3 min PRN). *Paediatric:* 10 mcg/kg IV/IO (AP). 10 mcg/kg IM/SC (P). 20 mcg/kg IN (EMT). (Repeat dose PRN to maintain opioid reversal to Max 0.1 mg/kg or 2 mg).
Side effects	Acute reversal of narcotic effect ranging from nausea and vomiting to agitation and seizures.
Additional information	Use with caution in pregnancy. Administer with caution to patients who have taken large dose of narcotics or are physically dependent. Rapid reversal will precipitate acute withdrawal syndrome. Prepare to deal with aggressive patients.

Clinical Level: EMT P AP

MEDICATION	NITROUS OXIDE 50% AND OXYGEN 50% (ENTONOX®)
Classification	Analgesics – Volatile Liquid Anaesthetics - Potent analgesic gas contains a mixture of both Nitrous Oxide and Oxygen.
Presentation	Cylinder, coloured blue with white and blue triangles on cylinder shoulders. *Medical gas:* 50% Nitrous Oxide & 50% Oxygen. Brand name: Entonox®.
Administration	Self-administered. Inhalation by demand valve with face-mask or mouthpiece. (*CPG:* 4/5/6.6.2, 4/5/6.12.3, 4/5/6.12.4, 4/5/6.13.13).
Indications	Moderate to severe pain.
Contra-Indications	Altered level of consciousness/ Chest Injury/ Pneumothorax/ Shock / Recent scuba dive/ Decompression sickness/ Intestinal obstruction/ Inhalation Injury/ Carbon monoxide (CO) poisoning/ Known severe adverse reaction/ Bullous Emphysema/ Middle Ear Procedures/ Following a recent dive/ Recent eye surgery involving bubble gas insertion/ Head injury/ Conditions where air is trapped in the body and expansion would be dangerous/ Maxillo-facial injuries/ Sedation or intoxication.
Usual Dosages	*Adult and Paediatric:* Self-administered until pain tolerable.
Side effects	Disinhibition/ Decreased level of consciousness/ Light headedness.
Additional information	Caution should be issued before using Entonox with patients who have known Chronic Obstructive Pulmonary Disease (COPD) or other conditions where compromised chemoreceptor sensitivity/function may be present. May cause respiratory depression and increases in $PaCO_2$. Do not use if patient unable to understand instructions. In cold temperatures warm cylinder and invert at least 3 times to ensure mix of gases. Advanced paramedics may use discretion with minor chest injuries. Has an addictive property. Caution when using Entonox® for greater than one hour for sickle cell crisis. Prolonged or frequent use of ENTONOX may result in megaloblastic marrow changes, myeloneuropathy and sub-acute combined degeneration of the spinal cord.

Clinical Level: P AP

MEDICATION	ONDANSETRON
Classification	Antiemetics and Antinauseants – Serotonin (5HT3 receptor antagonist).
Presentation	Ampoule 2 mL (4 mg in 2 mL).
Administration	IM/IV. (*CPG*: 5/6.5.5, 4/5/6.13.13).
Indications	Management, prevention and treatment of significant nausea and vomiting.
Contra-Indications	Known severe adverse reaction/ Congenital long QT syndrome.
Usual Dosages	*Adult:* 4 mg IM (P/AP) or slow IV (AP). *Paediatric:* 0.1 mg/kg 100 mcg/kg slow IV (AP) or IM (P/AP) to a Max of 4 mg.
Side effects	*General:* Flushing/ Headache/ Sensation of warmth/ Injection site reactions (rash, urticaria, itching). *Uncommon:* Arrhythmias/ Bradycardia/ Hiccups/ Hypotension/ Seizures. *Rare:* QT prolongation – monitor.
Additional information	Caution in patients with a known history or family history of cardiac conduction intervals (QT prolongation) or if patient has history of arrhythmias or electrolyte imbalance.

Clinical Level: CFR-A EFR EMT P AP

MEDICATION	OXYGEN
Classification	Gas.
Presentation	*Medical gas:* D, E or F cylinders, coloured black with white shoulders. (Please note: By 2025, all cylinders will be completely white with OXYGEN in black). *CD cylinder:* White cylinder.
Administration	*Inhalation via:* High concentration reservoir (non-rebreather) mask/ Simple face mask/ Venturi mask/ Tracheostomy mask/ Nasal cannulae/ CPAP device/ Bag Valve Mask. *(CPG:* **Oxygen is used extensively throughout the CPGs).**
Indications	Absent / Inadequate ventilation following an acute medical or traumatic event. SpO_2 < 94% adults and < 96% paediatrics. SpO_2 < 92% for patients with acute exacerbation of COPD. SpO_2 < 90% for patients with acute onset of Pulmonary Oedema.
Contra-Indications	Bleomycin lung injury.
Usual Dosages	*Adult:* Cardiac and respiratory arrest or sickle cell crisis; 100%. Life threats identified during primary survey; 100% until a reliable SpO_2 measurement obtained then titrate O_2 to achieve SpO_2 of 94% - 98%. For patients with acute exacerbation of COPD, administer O_2 titrate to achieve SpO_2 92% or as specified on COPD Oxygen Alert Card. All other acute medical and trauma titrate O_2 to achieve SpO_2 94% - 98%. *Paediatric:* Cardiac and respiratory arrest or sickle cell crisis: 100%. Life threats identified during primary survey; 100% until a reliable SpO_2 measurement obtained then titrate O_2 to achieve SpO_2 of 96% - 98%. Neonatal resuscitation (< 4 weeks) consider supplemental O_2 (≤ 30%). All other acute medical and trauma titrate O_2 to achieve SpO_2 of 96% - 98%.
Side effects	Prolonged use of O_2 with chronic COPD patients may lead to reduction in ventilation stimulus.
Additional information	Caution with emollients containing paraffin e.g. lip balms & moisurisers – may lead to skin burns. A written record must be made of what oxygen therapy is given to every patient. Documentation recording oximetry measurements should state whether the patient is breathing air or a specified dose of supplemental Oxygen. Consider humidifier if oxygen therapy for paediatric patients is > 30 minutes duration. Caution with paraquat poisoning, administer Oxygen if SpO_2 < 92%. Avoid naked flames, powerful oxidising agent.

Clinical Level: P AP

MEDICATION	OXYTOCIN
Classification	Prostaglandins and Oxytotics.
Presentation	5 international units in 1 mL ampoule.
Administration	IM. (*CPG*: 4/5/6.12.2, 4/5/6.12.6).
Indications	Pre-hospital emergency childbirth. Control of post-partum haemorrhage.
Contra-Indications	**Severe cardiac dysfunction/ Known Severe Adverse Reaction.**
Usual Dosages	*Adult:* 10 international units IM. *Paediatric:* Not Indicated.
Side effects	Cardiac arrhythmias/ Headache/ Nausea and vomiting/ Hypotension/ Abdominal pain/ Dizziness.
Additional information	Ensure that a second foetus is not in the uterus prior to administration. Avoid rapid intravenous injection (may transiently reduce blood pressure). Store at 2 – 8oC, shelf life un-refrigerated 3 months.

Clinical Level: EMT P AP

MEDICATION	PARACETAMOL
Classification	Analgesic – Non-opioid.
Presentation	Rectal suppository 1 g, 500 mg, 250 mg, 180 mg, 125 mg, 80 mg. Suspension 120 mg in 5 mL or 250 mg in 5 mL. 500 mg tablet. Plastic vial, 1 g of Paracetamol in 100 mL solution for infusion, 500mg of paracetamol in 50 mL solution for infusion.
Administration	Per Rectum (PR). Orally (PO). IV infusion. (*CPG*: 4/5/6.6.2, 4/5/6.11.1, 4/5/6.13.13, 4/5/6.13.19, 5/6.13.20, 5/6.15.2).
Indications	*Adult:* Pyrexia/ Temperature > 38.3°C/ Mild or moderate pain. *Paediatric:* Pyrexia/ Temperature > 38.5°C/ Mild or moderate pain.
Contra-Indications	< 1 month old/ Known severe adverse reaction/ Chronic liver disease.
Usual Dosages	*Adult:* 1 g PO (EMT, P/AP). 1 g IV infusion (AP), if estimated weight < 50 kg, 15 mg/kg (administered slowly over 15 minutes). *Palliative Care (P/AP): 1 g PO (Repeat after 4 – 6 hours x 1 PRN).* *Paediatric:* **PO** (EMT, P/AP) **PR** (P/AP) **IV Infusion (AP) (≥ 1 year Max 1 g)** 15 mg/Kg PO >1 month < 1 year - 80 mg PR < 1 year – 7.5 mg/kg IV slowly 1-3 years - 180 mg PR ≥ 1 year – 15 mg/kg IV slowly 4-8 years - 360 mg PR
Side effects	If Paracetamol IV is administered too fast it may result in hypotension.
Additional information	Paracetamol is contained in Paracetamol suspension and other over the counter drugs. Consult with parent / guardian in relation to medication administration prior to arrival on scene. For PR use be aware of the modesty of the patient, should be administered in the presence of a 2nd person. If Paracetamol administered in the previous 4 hours, adjust the dose downward by the amount given by other sources resulting in a maximum of 15 mg/Kg. Caution with IV Paracetamol in the absence of a buretrol.

Clinical Level: EFR EMT P AP

MEDICATION	SALBUTAMOL
Classification	Beta-2 Adrenoceptor agonist selective – short acting.
Presentation	Nebule 2.5 mg in 2.5 mL. Nebule 5 mg in 2.5 mL. Aerosol inhaler: Metered dose 100mcg per actuation (Puff).
Administration	Nebule Inhalation via aerosol inhaler. (*CPG*: 4/5/6.2.4, 2/3.2.5, 4/5/6.2.5, 4/5/6.8.9, 2/3.10.1, 4/5/6.10.1, 2/3.13.8, 4/5/6.13.8, 2/3.13.21, 4/5/6.13.21, 6.17.7).
Indications	Bronchospasm/ Exacerbation of COPD/ Respiratory distress following submersion incident.
Contra-Indications	Known severe adverse reaction.
Usual Dosages	Adult: 5 mg NEB or 100 mcg metered aerosol spray (Repeat aerosol x 11). Repeat NEB at 5 minute intervals PRN. EFR assist patient with Asthma/ Anaphylaxis. – 100 mcg metered aerosol spray. (Repeat aerosol x 11 PRN). Paediatric: < 5 yrs - 2.5 mg NEB or 100 mcg metered aerosol spray (Repeat aerosol x 5). ≥ 5 yrs - 5 mg NEB or 100 mcg metered aerosol spray (Repeat aerosol x 11). (Repeat NEB at 5 minute intervals PRN). EFR: assist patient with Asthma/ Anaphylaxis – < 5 yrs - 100 mcg /1 actuation metered aerosol spray (Repeat aerosol x 5 PRN). ≥ 5 yrs - 100mcg / 1 actuation metered aerosol spray (Repeat aerosol x 11 PRN).
Side effects	Tachycardia/ Tremors/ Tachyarrhythmias/ High doses may cause Hypokalaemia.
Additional information	It is more efficient to use a volumiser in conjunction with an aerosol inhaler when administering Salbutamol. If an oxygen driven nebuliser is used to administer Salbutamol for a patient with acute exacerbation of COPD it should be limited to 6 minutes maximum.

Clinical Level: AP

MEDICATION	SODIUM BICARBONATE INJECTION BP
Classification	Fluid and Electrolyte Imbalance – Bicarbonate – alkalinisation.
Presentation	Glass vial 8.4% in 100 mL.
Administration	IV/IO. (*CPG*: 4/5/6.8.4, 6.10.2, 4/5/6.14.2, 5/6.14.3, 4/5/6.14.5).
Indications	Wide complex QRS arrhythmias and / or seizures following Tricyclic antidepressant (TCA) overdose. Cardiac arrest following Tricyclic overdose. Cardiac arrest following harness induced suspension trauma.
Contra-Indications	Known severe adverse reaction.
Usual Dosages	*Adult:* 1 mEq/Kg (1 mL/Kg 8.4% solution). Max 50 mEq (50 mL 8.4%). *Paediatric:* Not indicated.
Side effects	Nil when used for emergencies.
Additional information	Sodium Bicarbonate 8.4% is a 1 mmol/mL solution.

Clinical Level: P AP

MEDICATION	SODIUM CHLORIDE 0.9% (NACL)
Classification	Electrolytes & Minerals: Isotonic crystalloid solution.
Presentation	Soft pack for infusion 100 mL, 500 mL and 1,000 mL. Ampoules 10 mL / pre-filled syringe 10 mL.
Administration	IV infusion/ IV flush/ IO. Paramedic: maintain infusion once commenced. (CPG: Sodium Chloride 0.9% is used extensively throughout the CPGs)
Indications	IV/IO fluid for pre-hospital emergency care.
Contra-Indications	**Known severe adverse reaction.**
Usual Dosages	*Adult:* Keep vein open (KVO) or medication flush for cardiac arrest PRN. *Asystole/ PEA* - Consider fluid challenge 1 L IV/IO (repeat PRN). *Crush injury/ Submersion* - 20 mL/Kg IV/IO infusion. *Suspension Trauma* - 2L IV (Maintain systolic BP > 90 mmHg). *Hypothermia:* 250 mL IV/IO infusion (warmed to 40°C approx.) (Repeat to max 1L). *# Neck of femur/ Symptomatic bradycardia:* 250 mL IV infusion. *Decompression illness/ Sepsis with signs of hypoperfusion/ Tachyarrhythmia/ Vomiting in pregnancy:* 500 mL IV/IO infusion. *Shock from blood loss:* 500 mL IV/IO infusion. Repeat in aliquots of 250 mL IV/IO to maintain SBP of 90-100 mmHg. For associated **Head injury** with GCS ≤ 8 maintain SBP of 120 mmHg. *Burns:* > 25% TBSA and / or 1 hour from time of injury to ED, 1000 mL IV/IO infusion. > 10% TBSA consider 500 mL IV/IO infusion. *Adrenal insufficiency/ Glycaemic Emergency/ Heat Related Emergency/ Sickle Cell Crisis:* 1,000 mL IV/IO infusion. *Anaphylaxis and Postpartum Haemorrhage:* 1,000 mL IV/IO infusion (repeat x 1 PRN). *Post-resuscitation care:* 250 mL IV/IO infusion, if persistent hypotension to maintain SBP > 100 mmHg or MAP > 70 mmHg. *Paediatric:* *Glycaemic Emergency/ Neonatal Resuscitation/ Sickle Cell Crisis:* 10 mL/Kg IV/IO infusion. *Hypothermia:* 10 mL/Kg IV/IO infusion (warmed to 40°C approx.) (repeat x 1 PRN). *Haemorrhagic shock:* 10 mL/Kg IV/IO repeat PRN if signs of inadequate perfusion. *Anaphylaxis:* 20 mL/Kg IV/IO infusion (repeat x 1 PRN). *Adrenal insufficiency/ Crush injury/ Septic shock/ Suspension Trauma/ Symptomatic Bradycardia:* 20 mL/Kg IV/IO infusion. *Asystole/ PEA* – Consider fluid challenge 20 mL/Kg IV/IO. *Post-resuscitation care:* 20 mL/Kg IV/IO infusion if persistent poor perfusion or < 5th percentile SBP. *Burns:* > 10% TBSA and / or > 1 hour from time of injury to ED: • 5 – 10 years: 250 mL IV/IO • > 10 years: 500 mL IV/IO.
Pharmacology / Action	Isotonic crystalloid solution/ Fluid replacement.
Side effects	Excessive volume replacement may lead to heart failure.
Additional information	Sodium Chloride 0.9% (NaCl) is the IV/IO fluid of choice for pre-hospital emergency care. For KVO use 500 mL pack only. Medication flush used in adult and paediatric cardiac arrest.

Clinical Level: P AP

MEDICATION	TICAGRELOR
Classification	Antithrombotic Drugs – Antiplatelet.
Presentation	90 mg tablets.
Administration	PO. (*CPG*: 5/6.3.1).
Indications	*Identification of ST elevation myocardial infarction (STEMI) if transporting to PPCI centre.*
Contra-Indications	Hypersensitivity to the active substance (Ticagrelor) or to any of the excipients/ Active pathological bleeding/ History of intracranial haemorrhage/ severe hepatic impairment.
Usual Dosages	*Adult:* Loading dose 180 mg PO. *Paediatric:* *Not indicated.*
Side effects	*Common:* Dyspnoea/ Epistaxis/ Gastrointestinal haemorrhage/ Subcutaneous or dermal bleeding/ Bruising and Procedural site haemorrhage. *Other undesirable effects include:* Intracranial bleeding/ Elevations of serum creatinine and uric acid levels. Consult SmPC for a full list of undesirable effects.
Additional information	*Special authorisation:* Advanced paramedics and paramedics are authorised to administer Ticagrelor 180 mg PO following identification of STEMI and medical practitioner instruction. If a patient has been loaded with an anti-platelet medication (other than Aspirin), prior to the arrival of the practitioner, the patient should not have Ticagrelor administered.

Clinical Level: AP

MEDICATION	TRANEXAMIC ACID
Classification	Antihaemorrhagics. Anti-fibrinolytic.
Presentation	Ampoule 500 mg in 5 mL.
Administration	Intravenous injection (IV). Intraosseous (IO). (*CPG*: 5/6.8.7, 4/5/6.12.6, 5/6.13.17).
Indications	Suspected significant internal or external haemorrhage associated with trauma Postpartum Haemorrhage.
Contra-Indications	**Hypersensitivity to the active substance or to any of the excipients/ Acute venous or arterial thrombosis/ History of convulsions/ Known severe renal impairment.**
Usual Dosages	*Adult:* 1 g IV/IO (infusion in 100 mL NaCl). *Paediatric:* *15 mg/kg (in 100 mL NaCL) (Max 1g).*
Side effects	Common: Diarrhoea/ Nausea/ Vomiting. Other undesirable effects include: Visual disturbance/ Impaired coloured vision/ Dizziness/ Headache.
Additional information	Caution with head injury.

APPENDIX 2 - Medication & Skills MATRIX

ADVANCED PARAMEDIC

New Medications and Skills for 2021

CLINICAL LEVEL	CFR-C	CFR-A	FAR	EFR	EMT	P	AP
Activated Charcoal PO*					√	√	√
Adrenaline nebulised						√	√
Dexamethasone PO						√	√
Lidocaine IO							√
Ketamine IM*							√
Uterine massage					√	√	√
Tourniquet application					√	√	√
Pressure points					√	√	√
Ketone measurement*					√	√	√
Tracheostomy management					√	√	√
Malpresentations in labour						√	√
Shoulder Dystocia management						√	√
Posterior ECG in ACS						√	√
Intubation of Stoma							√
Nasogastric Tube insertion*							√
Procedural Sedation*							√
Richmond Agitation-Sedation Scale (RASS)*							√

New Medications and Skills for June 2023 update for CPG 2021

CLINICAL LEVEL	CFR-C	CFR-A	FAR	EFR	EMT	P	AP
Trauma Triage Tool					√	√	√
Non-conveyance						√	√

Care management including the administration of medications as per level of training and division on the PHECC Register and Responder levels.

Pre-Hospital Responders and Practitioners shall only provide care management including medication administration for which they have received specific training. Practitioners must be privileged by a Licensed CPG Provider to administer specific medications and perform specific clinical interventions.

Paramedic authorisation for IV continuation

Practitioners should note that PHECC registered paramedics are authorised to continue an established IV infusion in the absence of an advanced paramedic or doctor during transportation.

APPENDIX 2 - Medication & Skills MATRIX

ADVANCED PARAMEDIC

√	Authorised under PHECC CPGs
URMPIO	Authorised under PHECC CPGs under registered medical practitioner's instructions only
APO	Authorised under PHECC CPGs to assist practitioners only (when applied to EMT to assist paramedic or higher clinical levels)
√ SA	Authorised subject to special authorisation as per CPG
BTEC	Authorised subject to Basic Tactical Emergency Care rules
*	Non-core specified element or action
√ *	Non-core specified element or action for identified clinical level

MEDICATIONS

CLINICAL LEVEL	CFR-C	CFR-A	FAR	EFR	EMT	P	AP
Aspirin PO	√	√	√	√	√	√	√
Oxygen INH		√		√	√	√	√
Glucose gel buccal				√	√	√	√
Glyceryl Trinitrate SL				√ SA	√	√	√
Adrenaline (1:1000) autoinjector				√ SA	√	√	√
Salbutamol MDI				√ SA	√	√	√
Activated Charcoal PO*					√	√	√
Adrenaline (1:1000) IM					√	√	√
Chlorphenamine PO/IM					√	√	√
Glucagon IM					√	√	√
Ibuprofen PO					√	√	√
Methoxyflurane INH					√	√	√
Naloxone IN					√	√	√
Nitrous Oxide and Oxygen INH					√	√	√
Paracetamol PO					√	√	√
Salbutamol nebulised					√	√	√
Adrenaline nebulised						√	√
Clopidogrel PO						√	√
Cyclizine IM						√	√
Dexamethasone PO						√	√
Glucose 5% IV						√ SA	√
Glucose 10% IV						√ SA	√
Hydrocortisone IM						√	√
Ipratropium Bromide nebulised						√	√
Midazolam buccal/IM/IN						√	√
Naloxone IM/SC						√	√
Ondansetron IM						√	√
Oxytocin IM						√	√
Paracetamol PR						√	√

APPENDIX 2 - Medication & Skills MATRIX

ADVANCED PARAMEDIC

CLINICAL LEVEL	CFR-C	CFR-A	FAR	EFR	EMT	P	AP
Ticagrelor PO						√	√
Sodium Chloride 0.9% IV/IO						√ SA	√
Adenosine IV							√
Adrenaline (1:10,000) IV/IO							√
Adrenaline (1:100,000) IV/IO							√
Amiodarone IV/IO							√
Atropine IV/IO							√
Ceftriaxone IV/IO/IM							√
Chlorphenamine IV							√
Cyclizine IV							√
Diazepam IV/PR							√
Fentanyl IN/IM/IV							√
Furosemide IV							√
Glycopyrronium Bromide SC*							√
Haloperidol PO/SC*							√
Hydrocortisone IV							√
Hyoscine Butylbromide SC*							√
Ketamine IV/IM*							√
Lidocaine IV/IO							√
Lorazepam PO							√
Magnesium Sulphate IV							√
Midazolam IV							√
Morphine IV/PO/IM							√
Naloxone IV/IO							√
Ondansetron IV							√
Paracetamol IV							√
Sodium Bicarbonate IV/IO							√
Tranexamic Acid IV							√

APPENDIX 2 - Medication & Skills MATRIX

ADVANCED PARAMEDIC

AIRWAY & BREATHING MANAGEMENT

CLINICAL LEVEL	CFR-C	CFR-A	FAR	EFR	EMT	P	AP
FBAO management	√	√	√	√	√	√	√
Head tilt chin lift	√	√	√	√	√	√	√
Pocket mask	√	√	√	√	√	√	√
Recovery position	√	√	√	√	√	√	√
Non-rebreather mask		√		√	√	√	√
Oropharyngeal airway		√		√	√	√	√
Oral suctioning		√		√	√	√	√
Venturi mask		√		√	√	√	√
Bag Valve Mask		√		√	√	√	√
Jaw thrust		√		√	√	√	√
Nasal cannula		√		√	√	√	√
Supraglottic airway adult (uncuffed)		√			√	√	√
Oxygen humidification				√	√	√	√
Nasopharyngeal airway				BTEC	BTEC	√	√
Supraglottic airway adult (cuffed)					√ SA	√	√
Tracheostomy management					√	√	√
Continuous Positive Airway Pressure						√	√
Non-Invasive ventilation device						√	√
Supraglottic airway paediatric						√	√
Endotracheal intubation							√
Intubation of stoma							√
Laryngoscopy / Magill forceps							√
Needle cricothyrotomy							√
Needle thoracocentesis							√

APPENDIX 2 - Medication & Skills MATRIX

ADVANCED PARAMEDIC

CARDIAC

CLINICAL LEVEL	CFR-C	CFR-A	FAR	EFR	EMT	P	AP
AED adult & paediatric	√	√	√	√	√	√	√
CPR adult, child & infant	√	√	√	√	√	√	√
Recognise death and resuscitation not indicated	√	√	√	√	√	√	√
Neonate resuscitation					√	√	√
ECG monitoring					√	√	√
CPR mechanical assist device*					√	√	√
Cease resuscitation - adult					√ SA	√	√
12 lead ECG						√	√
Manual defibrillation						√ *	√
Right sided ECG in ACS						√	√
Posterior ECG in ACS						√	√

HAEMORRHAGE CONTROL

CLINICAL LEVEL	CFR-C	CFR-A	FAR	EFR	EMT	P	AP
Direct pressure			√	√	√	√	√
Nose bleed			√	√	√	√	√
Haemostatic agent				BTEC*	√ *	√	√
Tourniquet application				BTEC	√	√	√
Pressure points					√	√	√
Wound closure clips					BTEC	√ *	√ *
Nasal pack						√	√

APPENDIX 2 - Medication & Skills MATRIX

ADVANCED PARAMEDIC

MEDICATION ADMINISTRATION

CLINICAL LEVEL	CFR-C	CFR-A	FAR	EFR	EMT	P	AP
Oral	√	√	√	√	√	√	√
Buccal				√	√	√	√
Metered dose inhaler				√ SA	√	√	√
Sublingual				√ SA	√	√	√
Intramuscular injection					√	√	√
Intranasal					√	√	√
Nebuliser					√	√	√
Subcutaneous injection					√	√	√
Infusion maintenance						√	√
Per rectum						√	√
Infusion calculations							√
Intraosseous injection/infusion							√
Intravenous injection/infusion							√

TRAUMA

CLINICAL LEVEL	CFR-C	CFR-A	FAR	EFR	EMT	P	AP
Burns care			√	√	√	√	√
Application of a sling			√	√	√	√	√
Soft tissue injury			√	√	√	√	√
Hot packs for active rewarming (hypothermia)			√	√	√	√	√
Active Spinal Motion Restriction				√	√	√	√
Cervical collar application				√	√	√	√
Helmet stabilisation/removal				√	√	√	√
Splinting device application to upper limb				√	√	√	√
Splinting device application to lower limb				√	√	√	√
Log roll				**APO**	√	√	√
Move patient with a carrying sheet				**APO**	√	√	√
Extrication using a long board				√ SA	√	√	√
Rapid Extraction				√ SA	√	√	√
Secure and move a patient with an extrication device				√ SA	√	√	√
Move a patient with a split device (Orthopaedic stretcher)				√ SA	√	√	√
Passive Spinal Motion Restriction						√	√
Pelvic Splinting device				**BTEC**	√	√	√
Move and secure patient into a vacuum mattress				**BTEC**	√	√	√
Move and secure a patient to a paediatric board					√	√	√
Traction splint application					**APO**	√	√
Lateral dislocation of patella – reduction						√	√
Taser gun barb removal						√	√

APPENDIX 2 - Medication & Skills MATRIX

ADVANCED PARAMEDIC

PATIENT ASSESSMENT

CLINICAL LEVEL	CFR-C	CFR-A	FAR	EFR	EMT	P	AP
Assess responsiveness	√	√	√	√	√	√	√
Check breathing	√	√	√	√	√	√	√
FAST assessment	√	√	√	√	√	√	√
Capillary refill			√	√	√	√	√
AVPU			√	√	√	√	√
Pulse check			√	√	√	√	√
Breathing / pulse rate		√ SA	√	√	√	√	√
Primary survey			√	√	√	√	√
SAMPLE history			√	√	√	√	√
Secondary survey			√	√	√	√	√
CSM assessment				√	√	√	√
Rule of Nines				√	√	√	√
Assess pupils				√	√	√	√
Blood pressure				√ SA	√	√	√
Pulse oximetry				√	√	√	√
Capacity evaluation					√	√	√
Chest auscultation					√	√	√
Glucometry					√	√	√
Ketone measurement*					√	√	√
Paediatric Assessment Triangle					√	√	√
Pain assessment					√	√	√
Patient Clinical Status					√	√	√
Temperature					√	√	√
Triage sieve					√	√	√
Trauma Triage Tool					√	√	√
Capnography						√	√
Glasgow Coma Scale (GCS)						√	√
Peak expiratory flow						√	√
Pre-hospital Early Warning Score						√	√
Treat and referral						√	√
Triage sort						√	√
Richmond Agitation-Sedation Scale (RASS) *							√

OTHER

CLINICAL LEVEL	CFR-C	CFR-A	FAR	EFR	EMT	P	AP
Use of Red Card	√	√	√	√	√	√	√
Assist normal delivery of a baby				APO	√	√	√
De-escalation and breakaway skills					√	√	√
ASHICE radio report					√	√	√
IMIST-AMBO handover					√	√	√
Uterine massage					√	√	√
Broselow tape						√	√
Malpresentations in labour						√	√
Non-conveyance						√	√
Shoulder Dystocia management						√	√
Umbilical cord complications						√	√
Verification of Death						√	√
Intraosseous cannulation							√
Intravenous cannulation							√
Nasogastric tube insertion*							√
Procedural Sedation*							√
Urinary catheterisation*							√

CRITICAL INCIDENT STRESS MANAGEMENT (CISM)

Your Psychological Well-Being

It is extremely important for your psychological well-being that you do not expect to save every critically ill or injured patient that you treat. For a patient who is not in hospital, whether they survive a cardiac arrest or multiple traumas depends on a number of factors including any other medical condition the patient has. Your aim should be to perform your interventions well and to administer the appropriate medications within your scope of practice. However, sometimes you may encounter a situation which is highly stressful for you, giving rise to Critical Incident Stress (CIS). A critical incident is an incident or event which may overwhelm or threaten to overwhelm our normal coping responses. As a result of this we can experience CIS.

When can I be adversely affected by a critical incident? Listed below are some common ways in which people react to incidents like this:

- Feeling of distress or sadness
- Strong feeling of anger
- Feeling of disillusionment
- Feeling of guilt
- Feeling of apprehension/anxiety/fear of:
  - Losing control/breaking down or
  - Something similar happening again
  - Not having done all I think I could have done
- Avoidance of the scene of incident/trauma
- Bad dreams, nightmares or startling easily
- Distressing memories or 'flashbacks' of the incident
- Feeling 'on edge', irritable, angry, under threat/pressure
- Feeling emotionally fragile or emotionally numb
- Feeling cut off from your family or close friends – "I can't talk to them" or "I don't want to upset them"
- Feeling of needing to control everything

Some Do's and Don'ts

- **DO express your emotions:**
  - Talk about what happened
  - Talk about how you feel and how the event has impacted you
  - Be kind to yourself and to others.
- **DO** talk about what has happened as often as you need
- **DO** find opportunities to review the experience **DO** discuss what happened with colleagues **DO** ask friends and colleagues for support
- **DO** listen sympathetically if a colleague wants to talk
- **DO** advise colleagues about receiving appropriate help
- **DO** keep to daily routines
- **DO** drive more carefully
- **DO** be more careful around the home
- **DON'T** use alcohol, nicotine or drugs to hide your feelings **DON'T** simply stay away from work – seek help and support **DON'T** allow anger and irritability to mask your feelings **DON'T** bottle up feelings
- **DON'T** be afraid to ask for help
- **DON'T** think your feelings are a sign of weakness

When things get tough, pro-actively minding yourself is crucial. Control the things you can control. Get more sleep than you think you need. Eat fresh, healthy foods at regular times and avoid snacks. Get outdoor exercise at least three times a week. Have a meaningful conversation with someone you like at least once a day. Resolve what makes you sad or angry or otherwise let it go. Be kind.

Everyone may have these feelings. Experience has shown that they may vary in intensity according to circumstance. Nature heals through allowing these feelings to come out. This will not lead to loss of control but stopping these feelings may lead to other and possibly more complicated problems.

When to find help?

1. If you feel you cannot cope with your reactions or feelings.
2. If your stress reactions do not lessen in the two or three weeks following the event.
3. If you continue to have nightmares and poor sleep.
4. If you have no-one with whom to share your feelings when you want to do so.
5. If your relationships seem to be suffering badly, or sexual problems develop.
6. If you become clumsy or accident prone.
7. If, in order to cope after the event, you smoke, drink or take more medication, or other drugs.
8. If your work performance suffers.
9. If you are tired all the time.
10. If things get on top of you and you feel like giving up.
11. If you take it out on your family.
12. If your health deteriorates.

Experiencing signs of excessive stress?

If the range of physical, emotional and behavioural signs and symptoms already mentioned do not reduce over time (for example after two weeks), it is important that you seek support and help.

Where to find help?

Your own Licensed CPG Provider will have a CISM support network or system.

We recommend that you contact them for help and advice (i.e. your peer support worker/ coordinator/staff support officer).

- For a self-help guide, please go to www.cismnetworkireland.ie
- The NAS CISM and CISM Network published a booklet called 'Critical Incident Stress Management for Emergency Personnel'.
- It can be purchased by emailing: info@cismnetworkireland.ie
- Consult your own GP or see a health professional who specialises in traumatic stress.
- In partnership with NAS CISM Committee, PHECC developed an eLearning CISM Stress Awareness Training (SAT) module. It can be accessed by the following personnel:
  - PHECC registered practitioners at all levels
  - National Ambulance Service-linked community first responders
  - NAS non-PHECC registered personnel
- Under the direction of CISM Network, bespoke CISM SAT modules are developed by Network member organisations.

Appendix 4 - 2021 CPG Updates

ADVANCED PARAMEDIC

Several broad changes have been applied in the 2021 version:

- Care Principles have been updated.
- The classification of CPGs has changed to up to seventeen categories, developed to group common themes and categories together.
- The term 'Registered' has been removed from references to registered healthcare professionals, for example Registered Medical Practitioner will now appear as Medical Practitioner.
- The transport patient symbol, along with other symbols, has been modernised throughout the CPGs.
- The description of dose of medications less that one milligram is now described in micrograms, for example GTN 0.4mg SL is now GTN 400 mcg SL.
- The description of sodium chloride (0.9%) infusion has been standardised to NaCl (0.9%).
- Epinephrine is now known as Adrenaline throughout the CPGs.
- Dextrose is now known as Glucose throughout the CPGs.
- The Medical Support symbol now states 'Consider Medical Support or 'Contact Medical Support'. Where 'Contact Medical Support' appears this should be regarded as mandatory.
- References to published source literature no longer appear on CPGs but are available from PHECC on request.
- The age descriptor has been removed from the title of paediatric CPGs.

Appendix 4 - 2021 CPG Updates

New AP CPGs in 2021 Edition

To support upskilling of the 2021 CPGs new CPGs are identified below.

New CPGs	The new skills and medications incorporated into the CPGs are:
CPG 4/5/6.2.7 Emergency Tracheostomy Management	This CPG outlines the approach to managing respiratory issues in a patient with a tracheostomy. Includes saline nebulised Intubation of stoma
CPG 5/6/3/4 Tachyarrhythmia Narrow QRS/ Regular Rate	This CPG outlines the management of a narrow complex regular tachyarrhythmia. Analgesia/ Sedation plan for synchronised cardioversion
CPG 5/6.3.5 Tachyarrhythmia Wide QRS/ Regular Rate	This CPG outlines the management of a wide complex regular tachyarrhythmia. Analgesia/ Sedation plan for synchronised cardioversion
CPG 5/6.3.6 Tachyarrhythmia Irregular Rate	This CPG outlines the management of an irregular tachyarrhythmia. Analgesia/ Sedation plan for synchronised cardioversion
CPG 6.6.5 Procedural Sedation/Analgesia – Adult	This non-core CPG outlines the approach to procedural sedation and analgesia for adult patients. Advanced Paramedics must be privileged by their respective CPG approved organisation to provide Procedural Sedation/Analgesia. Procedural sedation Richmond Agitation-Sedation Scale (RASS) Ketamine IM
CPG 4/5/6.12.1 Pregnancy related emergencies	This CPG outlines the assessment and management of pregnancy related emergencies.
CPG 5/6.12.4 Shoulder Dystocia	This CPG outlines the management of shoulder dystocia. Shoulder dystocia manoeuvres
CPG 4/5/6.12.7 New-born Neonatal Care and Resuscitation	This CPG outlines the assessment and management of the new-born including resuscitation and replaces CPG 5/6.5.2 Basic & Advanced Life Support – Neonate (< 4 weeks)
CPG 4/5/6.12.8 Neonatal Resuscitation (≤6 weeks)	This CPG outlines the approach to neonatal resuscitation.
CPG 4/5/6.13.18 Limb Injury – Paediatric	This CPG outlines the approach to paediatric limb injury. Ceftriaxone age specific dose IV/IO/IM for open fracture

Appendix 4 - 2021 CPG Updates

ADVANCED PARAMEDIC

New CPGs	The new skills and medications incorporated into the CPGs are:
CPG 6.13.27 Procedural Sedation/Analgesia – Paediatric	This non-core CPG outlines the approach to procedural sedation and analgesia for paediatric patients. Advanced Paramedics must be privileged by their respective CPG approved organisation to provide Procedural Sedation/Analgesia. Procedural sedation Richmond Agitation and Sedation Score
CPG 6.17.4 Toothache – Non-conveyance Adult	This non-core CPG outlines the approach to non-conveyance of adult patients with toothache.
CPG 6.17.5 Pepper (Oleoresin) spray – Non-conveyance Adult	This non-core CPG outlines the approach to non-conveyance of adult patients with exposure to Pepper (Oleoresin) spray.
CPG 6.17.6 Non-injury following trauma – Non-conveyance Adult	This non-core CPG outlines the approach to non-conveyance of adult patients with non-injury following trauma.
CPG 6.17.7 Mild Bronchospasm – Non-conveyance Adult	This non-core CPG outlines the approach to non-conveyance of adult patients with mild bronchospasm.
CPG 6.17.8 Epistaxis – Non-conveyance Adult	This non-core CPG outlines the approach to non-conveyance of adult patients with epistaxis.
CPG 6.17.9 Mild Allergy – Non-conveyance Adult	This non-core CPG outlines the approach to non-conveyance of adult patients with mild allergy.

Deleted AP CPGs in 2021 Edition

CPG DELETED	
CPG 5/6.5.2 Basic & Advanced Life Support – Neonate (<4 weeks)	This CPG has been deleted and replaced with CPG 4/5/6.12.7 – New-born Neonatal Care and Resuscitation and CPG 4/5/6.12.8 Neonatal Resuscitation (≤ 6 weeks).
CPG 4/5/6.5.3 PV Haemorrhage in Pregnancy	This CPG has been deleted and replaced with CPG 4/5/6.12.1 Pregnancy related emergencies.

Appendix 4 - 2021 CPG Updates

ADVANCED PARAMEDIC

Updated AP CPGs in the 2021 version

To support upskilling of the 2021 CPGs, the changes are outlined below.

New CPGs	The principal differences are:
CPG 4/5/6.2.3 Abnormal Work of Breathing – Adult	The CPG is retitled 'Abnormal Work of Breathing – Adult' (previously Inadequate Ventilations – Adult)
CPG 4/5/6.2.4 Exacerbation of COPD	**Deleted** Sequence step 'Measure Peak Expiratory Flow' Decision process 'PEF < 50% predicted' **Added** Decision process 'Deteriorates/ unstable' replaces decision process 'PEF < 50% predicted' Decision process 'Adequate ventilation' replaces decision process 'Adequate respirations' Consider treatment 'consider CPAP for profound refractory hypoxia' is introduced for Paramedic and AP level Instruction box 'If no improvement Salbutamol may be repeated at 5 min intervals' **Medication Update** Hydrocortisone 200 mg IM is introduced for Paramedic level Salbutamol may be repeated at 5 min intervals
CPG 4/5/6.2.5 Asthma - Adult	**Added** Instruction box 'If no improvement Salbutamol aerosol 100mcg may be repeated up to 11 times as required via MDI' replaces 'If no improvement Salbutamol aerosol 0.1 mg may be repeated up to 11 times as required'
CPG 5/6.2.6 Acute Pulmonary Oedema – Adult	**Deleted** Instruction box 'Criteria for CPAP' Instruction box 'Exclusion Criteria' **Added** Instruction box 'Inclusion criteria for CPAP – Clinical Signs of Acute Pulmonary Oedema – RR > 25 per min – SpO_2 < 95% - Exclusion criteria for CPAP – Sys BP < 90mmHg – Persistent nausea & vomiting – Inability to sit up – Pneumothorax – GI bleed or recent gastric surgery' **Medication updates** Atropine dose now described as a range from 0.5mg (500mcg) to 1mg IV

Appendix 4 - 2021 CPG Updates

ADVANCED PARAMEDIC

New CPGs	The principal differences are:
CPG 5/6.3.1 Acute Coronary Syndrome	**Deleted** Instruction box 'STEMI' definition Instruction box 'Right precordial leads should be acquired if inferior MI is suspected. ST segment elevation ≥ 1 mm in lead V4R is a useful indicator of right ventricular infarction.' Instruction box 'Indications for Thrombolysis' Instruction box 'Patient's age > 75 years do not give IV Enoxaparin but rather Enoxaparin 0.75 mg/kg SC (max 75 mg SC)' Instruction box 'Tenecteplase' Decision process 'Pre-hospital thrombolysis available' **Added** Instruction box 'STEMI: ST Segment Elevation in ≥ 2 contiguous leads (≥ 2mm in V2/V3, ≥ 1mm in all other leads or New/Presumably new LBBB with symptoms of Acute MI' Instruction box 'If inferior MI is suspected or confirmed, acquire right-sided ECG. Minimum V3R/ V4R. ST segment elevation ≥ 1 mm in lead V3R/ V4R is a useful indicator of right ventricular infarction' Instruction box 'Isolated Anterior ST Depression should prompt posterior ECG – Criteria for posterior wall STEMI in leads V7, V8, V9 ≥ 0.5mm' **Medication updates** Enoxaparin IV/SC is deleted Tenecteplase IV is deleted
CPG 4/5/6.3.2 Symptomatic Bradycardia – Adult	Medication Update Atropine dose now described as a range from 0.5mg (500mcg) to 1mg IV

Appendix 4 - 2021 CPG Updates

New CPGs	The principal differences are:
CPG 5/6.3.3 Tachyarrhythmia Overview	The CPG is retitled 'Tachyarrhythmia Overview' (previously Tachycardia – Adult) The CPG entry point is updated to 'Tachyarrhythmia (Excluding Sinus Tachycardia)' The CPG treatment pathway is significantly reorganised with classification of tachyarrhythmias leading to relevant CPGs and potential differential diagnosis boxes **Deleted** Sequence step 'IV access' Decision process 'HR > 150/min' Decision process 'Adverse signs' Decision process 'QRS complex < 0.12 sec' Instruction box 'Persistent tachyarrhythmia causing any of:' Consider treatment 'Consider cardioversion if unresponsive' Instruction box 'If initial Adenosine unsuccessful repeat at 12 mg x 2 PRN Max' Instruction box 'Continue cardioversion PRN' Sequence step 'If Atrial Fibrillation seek medical support' Sequence step 'Valsalva/ vagal Manoeuvre' **Added** Sequence step 'Monitor ECG / SpO_2' replaces mandatory sequence step 'Monitor ECG / SpO_2' Clinical finding 'Narrow QRS (< 0.12 Sec) Clinical finding 'Wide QRS (> 0.12 Sec) **Medication updates** With the exception of Oxygen therapy, all medications have been deleted and transferred to a relevant CPG
4/5/6.4.2 Epistaxis	**Deleted** Equipment list 'Proprietary nasal pack' **Added** Consider treatment option 'Consider insertion of a nasal pack' replaces 'Consider insertion of a proprietary nasal pack'.

Appendix 4 - 2021 CPG Updates

ADVANCED PARAMEDIC

New CPGs	The principal differences are:
CPG 5/6.5.1 **Adrenal Insufficiency – Adult**	**Deleted** Decision process 'SBP < 90 mmHg' 'if IV not available' from 'Consider Hydrocortisone 100 mg IM' **Added** Decision process 'Addisonian Crisis' replaces 'SBP < 90 mmHg' Sequence step 'Encourage Patient to take own oral Hydrocortisone' Instruction box 'The clinical presentation of an Addisonian Crisis can include: Sudden penetrating pain in the legs, lower back or abdomen – Severe vomiting and diarrhoea resulting in dehydration – Hypotension when sitting or even lying – Syncope – Hypoglycaemia – Confusion and slurred speech – Fatigue – Convulsions'
CPG 4/5/6.5.2 **Decompression Illness**	**Added** Transport patient 'Transport is completed at an altitude of < 1000 ft. above incident site or aircraft pressurised equivalent to sea level' replaces 'Transport is completed at an altitude of < 300 meters above incident site or aircraft pressurised equivalent to sea level'
CPG 4/5/6.5.3 **Glycaemic Emergency – Adult**	**Added** Consider treatment option 'Consider Ketone measurement' is a non-core element for EMT, Paramedic and AP level Instruction box 'Consider Glucagon IM if not already given'
CPG 4/5/6.5.4 **Sickle Cell Crisis - Adult**	**Added** Instruction box 'Administer 15L of oxygen via a non-rebreather facemask' replaces '100% O_2'
CPG 5/6.6.1 **Altered Level of Consciousness - Adult**	**Added** 'Possible differential diagnosis' box replaces 'Differential diagnosis' box

Appendix 4 - 2021 CPG Updates

New CPGs	The principal differences are:
CPG 4/5/6.6.2 **Pain Management – Adult**	**Deleted** Instruction box 'Following Fentanyl IN the next dose may be either Fentanyl IV or Morphine IV but not both' **Added** Instruction box 'Repeat Fentanyl IN once only at not <10 min after initial dose PRN' Instruction box 'Repeat Ketamine PRN at not < 10 min' replaces 'Repeat Ketamine once only at not < 10 minutes PRN' Instruction box 'Poly-opiate administration should be avoided where possible – where multiple opiates are being administered the highest standards of continued patient monitoring must be adhered to' Cyclical process box for 'IO Access & Analgesia' Special instructions box 'Do not administer Amiodarone and Lidocaine to the same patient' **Medication Updates** Fentanyl 50mcg IV 'and/or' Morphine 4mg IV replaces Fentanyl 0.05 mg IV 'or' Morphine 4mg for 2nd line management of severe pain. Drug doses described by less than 1 milligram are replaced by micrograms (see below) Fentanyl 0.1 mg IN now expressed as Fentanyl 100 mcg IN (same dose) Fentanyl 0.05 mg IV now expressed as Fentanyl 50 mcg IV (same dose) Ketamine dose changed from 0.1 mg/kg IV to 100 – 300 mcg/kg IV **New Medications** Lidocaine 1% 40 mg IO over 2 min (IO Access & Analgesia) Lidocaine 1% 20 mg IO over 1 min (IO Access & Analgesia)
CPG 5/6.6.3 **Seizure/Convulsion - Adult**	**Added** Instruction box 'Benzodiazepines - Licensed CPG providers must enable Paramedics to administer via at least 1 route, Advanced Paramedics via at least 2 routes'

Appendix 4 - 2021 CPG Updates

ADVANCED PARAMEDIC

New CPGs	The principal differences are:
CPG 4/5/6.7.2 **Behavioral Emergency**	**Deleted** 'or if the implementation of the decision requires the act of a third party' from the Instruction box describing the circumstances where a person lacks the capacity to make a decision **Added** Decision process 'Aggressive/violent and/or risk to self or others and uncooperative with practitioner' is reorganised Mandatory sequence step 'Hand over to MP/ Garda care' replaces 'Hand over to RMP/ Garda care' Sequence step '$ETCO_2$' added to 'Monitor BP SpO_2 and ECG' Sequence step 'Mental Health Illness' Instruction box 'If potential to harm self or others ensure minimum two people accompany patient in saloon of ambulance at all times' replaces 'Consider need for two or more people accompanying the patient during transportation' **Medication updates** Consider paediatric Midazolam 0.1 mg/kg IN is deleted
CPG 5/6.8.2 **Crush Injury**	**Added** Instruction box 'Be prepared to package and move patient following extrication' replaces 'Prepare all required patient carrying devices and have on standby following extrication'
CPG 4/5/6.8.3 **External Haemorrhage – Adult**	**Deleted** Paramedic skill flag from mandatory sequence step 'Apply tourniquet if limb injury' Paramedic skill flag from sequence step 'Depress proximal pressure point' Paramedic skill flag from sequence step 'Apply tourniquet' 'apply a tourniquet and/or' from EMT-BTEC Special Authorisation box **Added** Mandatory sequence step 'Apply and mark tourniquet if limb injury' replaces 'Apply tourniquet if limb injury' and is an EMT level skill Consider treatment option 'Consider wound closure clips for temporary closure if serious haemorrhage' is a non-core element for Paramedic and AP level Consider treatment option 'consider applying a dressing impregnated with haemostatic agent' is a Paramedic level skill Consider treatment option 'consider applying a dressing impregnated with haemostatic agent' is a non-core element for EMT level

Appendix 4 - 2021 CPG Updates

New CPGs	The principal differences are:
CPG 4/5/6.8.6 **Limb Injury – Adult**	The CPG treatment pathway is reorganised **Deleted** Instruction box 'Contraindications for application of traction splint' Decision process 'Injury type' Decision process '> 20 min to facility' **Added** Parallel process 'Consider hypovolaemia and shock' Decision process 'Fracture' Decision process 'Femur fracture' replaces clinical finding 'Fractured femur' Decision process 'Rest, Cooling, Compression & Elevation' replaces decision process Rest – Ice – Compression – Elevation' Sequence step 'For open fracture - Remove gross contamination' **Medication Updates** For open fractures Ceftriaxone 2g IV/IO/IM
CPG 4/5/6.8.9 **Submersion / Immersion Incident**	The CPG is retitled 'Submersion/ Immersion Incident' (previously Submersion Incident) The CPG entry point is updated to 'Submersion / immersion in liquid' The CPG treatment pathway is reorganised Instruction box outlining the indications of spinal injury is revised to 'History of: Diving into shallow water – Injury following: water slide, water skiing, kite-surfing, boat incident – Alcohol/ drugs intoxication' **Deleted** Decision process 'Adequate ventilations' **Added** Decision process 'Responsive' Decision process 'Spontaneous Breathing' Mandatory sequence step 'Open airway - Five rescue breaths' Decision process 'Spontaneous Breathing' Mandatory sequence step 'Continue ventilations' Sequence step 'Advanced airway with cuffed devices only (monitor for leaks)' for Paramedic and AP level Consider treatment option 'Consider nasogastric tube' is a non-core element for AP level Sequence step 'Auscultate lungs' Decision process 'Crepitations' Decision process 'Hypotensive' Decision process Hypothermic' replaces 'Patient is hypothermic' **Medication Update** NaCl (0.9%) 20 mL/kg IV/IO for hypotension

Appendix 4 - 2021 CPG Updates

ADVANCED PARAMEDIC

New CPGs	The principal differences are:
CPG 5/6.8.10 **Traumatic Cardiac Arrest – Adult**	The CPG entry point 'EMS Witnessed or recent (< 5 minutes) Traumatic Arrest' replaces 'EMS Witnessed Traumatic Arrest' The CPG entry point 'EMS Unwitnessed Traumatic Arrest (> 5 minutes)' replaces 'EMS Unwitnessed Traumatic Arrest' The CPG treatment pathway is reorgansied with addition of 'VF/VT' and 'PEA' pathways **Added** Instruction box 'Consider non-traumatic causes' Mandatory sequence step 'Rhythm check' is the initial step in both algorithms Mandatory sequence step 'Catastrophic haemorrhage, Airway and Breathing management' Consider treatment 'Consider bilateral chest needle decompression' Consider treatment 'Consider Pelvic binder' Special instruction box 'Pre-alert ED' Instruction box 'It may be reasonable to consider immediately prioritising meaningful interventions for witnessed traumatic arrest over standard BLS/ALS, such as treatment of: tension pneumothorax, life-threatening haemorrhage, IV volume replacement, inclusion of pelvic binder or lone bone gross fracture realignment.' **Medication Update** Oxygen therapy
CPG 5/6.9.1 **Hypothermia**	**Medication Update** Consider treatment option 'NaCl warmed to 40°C approx' replaces 'NaCl warmed to 40°C approx' education instruction is a non-core element for AP level
CPG 6.10.2 **Poisons – Adult**	**Added** Additional CPG entry point 'Solid substance ingested and GCS 15' Decision process 'Activated charcoal indicated' Instruction box 'Substances that are adsorbed by Activated charcoal are available in the PHECC field guide'. Consider treatment 'Consider treatment options' **Medication Update** 'Naloxone 0.4 mg IV/IO/IM/SC or 0.8 mg – 2 mg IN Repeat PRN' replaces 'Naloxone 0.4 mg IV/IO/IM/SC or 0.8 mg IN Repeat PRN to max cumulative dose of 2 mg' **New Medications** Consider treatment option 'Activated charcoal 50 g PO' is a non-core element for EMT, Paramedic and AP level

Appendix 4 - 2021 CPG Updates

New CPGs	The principal differences are:
CPG 4/5/6.11.1 **Sepsis - Adult**	The CPG entry point is updated to 'Patient generally unwell with suspected infection < 36°C or > 38.3°C The CPG treatment pathway is significantly reorganised **Deleted** Sequence step 'Signs of Systemic Inflammatory Response Syndrome (SIRS)' Sequence step 'Could this be a severe infection?' Instruction box 'Risk stratifier' Instruction box 'If history of penicillin allergy assess the severity of the reaction and if not life-threatening, i.e. rash, proceed with Ceftriaxone' Instruction box 'If meningitis suspected ensure appropriate PPE is work; Mask and goggles' Instruction box 'Indication for antibiotic' Instruction box 'Signs of shock/ poor perfusion' Consider treatment 'If Sys BP < 100 mmHg consider aliquots NaCl 0.9% 250 mL IV/IO **Added** Sequence step 'HR, RR, ECG, SpO_2 & BP monitoring' replaces 'ECG, SpO_2 & BP monitoring' Mandatory sequence step 'Abnormal physiology? Source of Infection?' Decision process 'At risk' Instruction box 'Evidence of at-risk criteria (any 1 of 3) 1. Any 1 Clinical sign of acute organ dysfunction - 2. At risk of neutropenia (bone marrow failure, autoimmune disorder, treatment including but not limited to chemo/ radiotherapy). Note: these patients may present without fever - 3. ≥ SIRS criteria PLUS ≥ 1 co-morbidity' Sequence step 'Give 3 if clinically indicated' Instruction box 'Signs of Systemic Inflammatory Response Syndrome (SIRS)' Instruction box 'Give 3 1. O_2 titrate to sats > 94% (88 – 92% for chronic lung conditions e.g. COPD) 2. IV fluids, patients with hypotension max 30 mL/kg 3. IV antimicrobials' replaces 'Give three - O_2 titrate to sats > 94% - IV fluids – IV antimicrobials' Decision process 'Signs of hypoperfusion' replaces 'Signs of poor perfusion' Sequence step 'Monitor clinical condition; re-evaluate for possible sepsis if clinically indicated' Instruction box 'High Consequence Infectious Disease (HCID) ensure appropriate PPE is worn; Long sleeve gown, Facemask, Eye protection' Special instruction box 'Pre alert ED if sepsis" replaces 'Pre alert ED if severe sepsis'

Appendix 4 - 2021 CPG Updates

ADVANCED PARAMEDIC

New CPGs	The principal differences are:
CPG 4/5/6.11.1 **Sepsis - Adult** **(Contd.)**	**Medication updates** NaCl (0.9%) 500 mL IV/IO Over 15 minutes replaces 'NaCl 0.9% 500 mL IV/IO' NaCl (0.9%) 500 mL IV/IO Over 15 mins Repeat x 2 PRN' replaces 'NaCl 0.9% 500 mL IV/IO Repeat x 3 PRN' **New Medications** If septic shock suspected and not responsive to IV fluids consider 'Adrenaline 10mcg IV/IO' Repeat PRN
CPG 4/5/6.12.2 **Pre-Hospital Emergency Childbirth**	EMT level is added to this CPG The CPG treatment pathway is significantly reorganised The CPG entry point is updated to 'In labour' **Deleted** Instruction box 'If no progress with labour consider transporting patient' Sequence step 'Take SAMPLE history' Decision process 'Patient in labour' Mandatory sequence step 'Request Ambulance Control to contact GP/midwife/medical team as required by local policy to come to scene or meet en route' Mandatory sequence step 'Cover newborn in polythene wrap/bag up to neck without drying first' **Added** Decision process 'Birth imminent' replaces 'Birth imminent or travel time too long' 'Consider ALS' replaces 'Request ALS' Sequence step 'Request second crew' Instruction box 'Consider Additional crew for each baby expected' Decision process 'Malpresentation' replaces 'Breech birth' Decision process 'Risk factors' Sequence step 'Initiate rapid transport – Pre-alert labour ward – Optimise resuscitation of mother' Mandatory sequence step 'Aim: birth in hospital' Sequence step 'Mother to adopt position of comfort and prepare environment & equipment for birth' replaces 'Position mother and prepare equipment for birth' Sequence step 'Monitor vital signs' replaces 'Monitor vital signs and BP' Decision process 'Pre-hospital delivery' Mandatory sequence step 'Warm, dry, stimulate baby. Check ABCs' replaces 'Dry baby and check ABCs'

Appendix 4 - 2021 CPG Updates

New CPGs	The principal differences are:
CPG 4/5/6.12.2 **Pre-Hospital Emergency Childbirth** **(Contd.)**	Mandatory sequence step 'Check for second baby' Sequence step 'Skin to skin contact' replaces 'Wrap baby and present to mother (Skin to skin preference)' Sequence step 'Encourage breastfeeding (no contraindications)' Instruction box 'Risk factors for complicated delivery – Prematurity – Multiple births – PV bleeding – Pre-eclampsia indicators – Trauma – Possible abruption – Hx anticoagulant use or bleeding disorder – Hx Female Genital Mutilation – Meconium in liquor – Placenta previa/ low placenta – Cervical cerclage (stitch in) – Diabetes' Instruction box 'Wait at least one minute post birth. Clamp cord at 10, 15 & 20 cm from baby – Cut cord between 15 and 20 cm clamps' replaces 'Wait at least one minute post birth then clamp cord at 10, 15 & 20 cm from baby – Cut cord between 15 and 20 cm clamps' Transport 'To Obstetric Unit' **Medication updates** Consider treatment '
CPG 4/5/6.12.3 **Malpresentations (Breech, face or brow)**	The CPG is retitled 'Malpresentations (Breech, face or brow)' (previously Breech birth) The CPG entry point is updated to 'Malpresentation' The CPG treatment pathway is significantly reorganised **Deleted** Mandatory sequence step 'Request Ambulance Control to contact GP/ midwife/medical team as required by local policy to come to scene or meet en route' Sequence step 'Grasp both baby's ankles in other hand' Sequence step 'Rotate baby's legs in an arc in an upward direction as contractions occur' **Added** Instruction box 'Use a hands off approach unless there are complications. Avoid touching cord. Avoid manipulation, traction and stimulation until baby is fully delivered' Sequence step 'Mother to adopt position of comfort' replaces 'Mother to adopt the lithotomy position' Clinical finding 'Breech' Sequence step 'Support the baby as it emerges – avoid manipulation of the baby's body (passive support)' replaces 'Support the baby as it emerges – avoid manipulation of the baby's body' Sequence step 'Place second hand on other side of baby's head to minimise hyperextension of neck' Sequence step 'Support baby on forearm and keep baby's back anterior'

Appendix 4 - 2021 CPG Updates

New CPGs	The principal differences are:
CPG 4/5/6.12.3 **Malpresentations (Breech, face or brow)** **(Contd.)**	Mandatory sequence step 'Place hand in the vagina with palm towards the baby's face – Form a V with fingers on each side of the baby's nose. Using the back of your hand gently push vaginal wall away from the baby' replaces 'Place hand in the vagina with palm towards the baby's face – Form a V with fingers on each side of the baby's nose and gently push baby's head away from the vaginal wall' Clinical finding 'Face/ Brow' Sequence step 'Initiate rapid transport – Pre-alert labour ward – Optimise resuscitation of mother' Mandatory sequence step 'Rapid transfer to Obstetrics Unit' Sequence step 'Pre-alert' Transport 'To Obstetric Unit' **Medication updates** Consider treatment 'Oxygen therapy' is moved to the start of the treatment pathway Consider 'Nitrous Oxide and Oxygen' is moved to the start of the treatment pathway
CPG 4/5/6.12.5 **Umbilical Cord Complications**	**Deleted** Mandatory sequence step 'Request Ambulance Control to contact GP/ midwife/medical team as required by local policy to come to scene or meet en route' Sequence step 'Attempt to slip the cord over the baby's head' Sequence step 'Ease the cord from around the neck as shoulders are delivered' Consider treatment 'Nifedipine 20 mg PO' **Added** Instruction box 'Use a hands off approach unless there are complications. Avoid touching cord. Avoid manipulation, traction and stimulation until baby is fully delivered' Instruction box 'Pre-alert hospital at earlier opportunity. Emergency caesarean section may be required for cord prolapse' replaces 'For prolapsed cord pre-alert hospital as emergency caesarean section will be required' Sequence step 'Avoid excessing manipulation and traction on the cord' Sequence step 'Apply additional clamps to cord on either side of the rupture' replaces 'Apply additional clamps to cord' Mandatory sequence step 'Mother to adopt head down in left lateral position (hips higher than head)' replaces 'Mother to adopt head down left lateral position'

Appendix 4 - 2021 CPG Updates

New CPGs	The principal differences are:
CPG 4/5/6.12.5 **Umbilical Cord Complications** **(Contd.)**	Sequence step 'Hold presenting part off the cord using fingers, rotate fingers as required' replaces 'Hold presenting part off the cord using fingers' Sequence step 'Minimal handling of cord and cover with sterile pad' replaces 'Maintain cord temperature and moisture' Consider treatment option 'If prolonged transport time (> 15 min) consider inserting an indwelling catheter into the bladder and run 500 mL of NaCl into the bladder and clamp catheter' replaces 'Consider inserting an indwelling catheter into the bladder and run 500 mL of NaCl into the bladder and clamp catheter' and is a non-core element for AP level Mandatory sequence step 'Rapid transfer to Obstetrics Unit' Transport 'To Obstetric Unit' **Medication Updates** Nifedipine 20 mg PO is deleted
CPG 4/5/6.12.6 **Post Pregnancy Care (Including miscarriage and abortion)**	The CPG is retitled 'Post Pregnancy Care (Including miscarriage and abortion)' (previously Postpartum Haemorrhage) The CPG entry point is updated to '≤ 6 weeks Post-partum' The CPG treatment pathway is significantly reorganised **Deleted** Instruction box 'Estimate blood loss' Instruction box 'Check/ask mother re multiple births prior to administration of Oxytocin' Sequence step 'Apply absorbent pad to perineum area' Sequence step 'Elevate lower limbs' Consider treatment 'Consider inserting a urinary catheter' **Added** Special instruction box 'If possibility of on-going pregnancy go to pregnancy CPG' Clinical finding 'PV Bleeding' Consider treatment 'Consider retained parts of conception as cause' Decision process 'Signs of shock' replaces 'Mother is haemodynamically unstable' Sequence step 'Uterine massage' replaces mandatory sequence step 'External massage of the uterus' and is an EMT, Paramedic and AP level skill Consider treatment 'Consider breast feeding (If no contraindications)'

Appendix 4 - 2021 CPG Updates

ADVANCED PARAMEDIC

New CPGs	The principal differences are:
CPG 4/5/6.12.6 **Post Pregnancy Care (Including miscarriage and abortion)** **(Contd.)**	Consider treatment 'Consider breast feeding (If no contraindications)' Decision process 'Signs of sepsis' Transport 'To Obstetric Unit' Clinical finding 'Sepsis' Instruction box 'Additional sepsis symptoms – Low back pain – PV bleed – PV discharge' Clinical finding 'Delivery ≥ 20 weeks with; Headache, Visual disturbance, Dyspnoea, Oedema or seizure' Sequence step 'Measure BP' Decision process 'Eclamptic seizure or pre-eclampsia suspected (BP > 140/90 x 2)' 'Request ALS' Instruction box 'Suspect pre-eclampsia if above symptoms present and 2 elevated BP readings 15 min apart' Transport 'To General ED' Clinical finding 'Altered Mood' Consider 'Mental Health CPG' Sequence step 'Assess home environment & supports (report at handover) **Medication Updates** Oxygen therapy is deleted Oxytocin 10 International units IM (even if administered prior to arrival) replaces Oxytocin 5
CPG 4/5/6.13.1 **Primary Survey Medical – Paediatric**	**Added** Special instruction box 'Report findings as per Children First Act 2015 to ED staff and Tusla in a confidential manner' replaces 'Report findings as per Children First guidelines to ED staff and line manager in a confidential manner'
CPG 4/5/6.13.2 **Primary Survey Trauma – Paediatric**	**Added** Special instruction box 'Report findings as per Children First Act 2015 to ED staff and Tusla in a confidential manner' replaces 'Report findings as per Children First guidelines to ED staff and line manager in a confidential manner' Sequence step 'Jaw thrust' replaces sequence step 'Jaw thrust (Head tilt/ chin lift)'
CPG 4/5/6.13.4 **Secondary Survey – Paediatric**	**Added** Special instruction box 'Report findings as per Children First Act 2015 to ED staff and Tusla in a confidential manner' replaces 'Report findings as per Children First guidelines to ED staff and line manager in a confidential manner'

Appendix 4 - 2021 CPG Updates

New CPGs	The principal differences are:
CPG 6.13.5 **Foreign Body Airway Obstruction – Paediatric**	**Added** Instruction box 'After each cycle of CPR open mouth and look for object. If visible make one attempt to remove it' replaces Instruction box 'After each cycle of CPR open mouth and look for object. If visible attempt once to remove it'
CPG 4/5/6.13.7 **Abnormal Work of Breathing – Paediatric**	The CPG is retitled Abnormal Work of Breathing – Paediatric (previously Inadequate Ventilations – Paediatric)
CPG 4/5/6.13.8 **Asthma – Paediatric**	**Medication Updates** Hydrocortisone age specific doses IV are revised
CPG 4/5/6.13.9 **Stridor – Paediatric**	**Added** Consider treatment option 'Consider humidified O_2 – as high a concentration as tolerated' is a non-core element for EMT, paramedic and AP level and replaces sequence step 'Humidified O_2 – as high a concentration as tolerated'. Mandatory sequence step 'Do not insert anything into the mouth (other than PO medications for croup)' replaces 'Do not insert anything into the mouth' Instruction box 'Signs of Croup may include: Hypoxia/ cyanosis – Marked respiratory distress – Stridor – Irritability or lethargy – Marked increased respiratory rate – If persistent treat as severe croup – If symptoms are intermittent treat as moderate croup' Instruction box 'Maximum Dexamethasone administered within the past 72 hours not to exceed 600 mcg/kg' **Medication Updates** Adrenaline age specific dose Neb is introduced for Paramedic level Oxygen therapy and sequence step 'Humidified O_2 – as high a concentration as tolerated' have been uncoupled **New Medications** Dexamethasone 300 mcg/kg PO/IM

Appendix 4 - 2021 CPG Updates

ADVANCED PARAMEDIC

New CPGs	The principal differences are:
CPG 5/6/13.10 **Adrenal Insufficiency – Paediatric**	The CPG treatment pathway is reorganised **Added** Instruction box 'The clinical presentation of an Addisonian Crisis can include: Sudden penetrating pain in the legs, lower back or abdomen – Severe vomiting and diarrhoea resulting in dehydration – Hypotension when sitting or even lying – Poor perfusion – Syncope – Hypoglycaemia – Confusion and slurred speech – Fatigue – Convulsions' Decision process 'Addisonian Crisis' replaces 'Poor perfusion' Sequence step 'Encourage patient to take own oral Hydrocortisone' **Medication Updates** Hydrocortisone IV age specific doses are revised Consider Hydrocortisone IM (if IV not available) age specific doses are revised
CPG 4/5/6.13.11 **Glycaemic Emergency – Paediatric**	**Added** Consider treatment option 'Consider Ketone measurement' is a non-core element for EMT, Paramedic and AP level **Medication Updates** Glucagon age specific doses IM are revised
CPG 4/5/6.13.13 **Pain Management – Paediatric**	**Added** Instruction box 'Following Fentanyl IN the next dose may be either Fentanyl IN or Morphine IV' replaces 'Following Fentanyl IN the next dose may be either Fentanyl IV or Morphine IV but not both'. Instruction box 'Morphine PO for ≥ 1 year old only – Repeat Morphine at not < 2 min intervals PRN to Max of 100 mcg/kg IV.' replaces 'Morphine PO for ≥ 1 year old only – Repeat Morphine at not < 2 min intervals PRN to Max of 0.1 mg/kg IV Instruction box 'Repeat Ketamine PRN at not < 10 minutes.' replaces 'Repeat Ketamine once only at < 10 minutes PRN. Instruction box 'Poly-opiate administration should be avoided where possible – where multiple opiates are administered continuous patient monitoring is essential'

Appendix 4 - 2021 CPG Updates

New CPGs	The principal differences are:
CPG 4/5/6.13.13 **Pain Management – Paediatric** **(Contd.)**	**Medication Updates** Drug doses described by less than 1 milligram are now expressed in micrograms (see below) Fentanyl 0.0015 mg/kg IN now expressed as Fentanyl 1.5 mcg/kg IN (same dose) Morphine 0.3 mg/kg PO now expressed as Morphine 300 mcg/kg PO (same dose) Morphine 0.05 mg/kg IV now expressed as Morphine 50 mcg/kg IV (same dose) Ketamine 0.1 mg/kg IV dose range is increased and now expressed as Ketamine 100-300 mcg/kg IV Ondansetron 0.1 mg/kg IM/ IV slowly (Max 4 mg) now expressed as Ondansetron 100 mcg/kg IM/ IV slowly (Max 4 mg) (same dose) Paracetamol PO dose is revised to 15 mg/kg
CPG 5/6.13.14 **Seizure/Convulsion - Paediatric**	**Added** Instruction box 'Benzodiazepines - Licensed CPG providers must enable Paramedics to administer via at least 1 route, Advanced Paramedics via at least 2 routes' Medications Updates Midazolam Buccal dose for < 3 months is revised to 0.3mg/kg (max 2.5 mg) Diazepam PR age specific doses are revised
CPG 4/5/6.13.14 **Burns – Paediatric**	**Added** Instruction box 'Should cool for another 20 minutes during packaging and transfer – Caution with hypothermia' replaces Instruction box 'Should cool for another 10 minutes during packaging and transfer – Caution with hypothermia'
CPG 4/5/6.13.16 **External Haemorrhage – Paediatric**	**Deleted** Paramedic skill flag from mandatory sequence step 'Apply tourniquet if limb injury' Paramedic skill flag from sequence step 'Depress proximal pressure point' Paramedic skill flag from sequence step 'Apply tourniquet' 'apply a tourniquet and/or' from EMT-BTEC Special Authorisation box

Appendix 4 - 2021 CPG Updates

ADVANCED PARAMEDIC

New CPGs	The principal differences are:
CPG 4/5/6.13.16 **External Haemorrhage – Paediatric** **(Contd.)**	**Added** Mandatory sequence step 'Apply and mark tourniquet if limb injury' replaces 'Apply tourniquet if limb injury' and is a EMT level skill Consider treatment option 'Consider wound closure clips for temporary closure if serious haemorrhage' is a non-core element for Paramedic and AP level Consider treatment option 'consider applying a dressing impregnated with haemostatic agent' is a Paramedic level skill Consider treatment option 'consider applying a dressing impregnated with haemostatic agent' is a non-core element for EMT level
CPG 5/6.13.17 **Actual/Potential Shock from Blood Loss (trauma) – Paediatric**	The CPG is retitled 'Actual/Potential Shock from Blood Loss (trauma) – Paediatric (previously Shock from Blood Loss – Paediatric) The CPG entry point is updated to 'Clinical signs of shock post trauma' and 'Mechanism suggestive of significant risk of haemorrhage' The CPG treatment pathway is reorganised **Added** Mandatory sequence step 'Control external haemorrhage' replaces sequence step 'Control external haemorrhage' Decision process 'Clinical signs of shock' Decision process 'Suspected significant internal/external haemorrhage' Sequence step 'Maintain normo-temperature' **New Medications** Tranexamic acid 15 mg/kg IV/IO (in 100 mL NaCl)
4/5/6.13.19 **Pyrexia – Paediatric**	**Medication Updates** Paracetamol PO dose is revised to 15 mg/kg
CPG 4/5/6.13.20 **Sepsis – Paediatric**	The CPG is retitled Sepsis – Paediatric (previously Septic Shock – Paediatric) EMT level is added to this CPG The CPG treatment pathway is significantly reorganised The CPG entry point is updated to 'Patient generally unwell with suspected infection Temperature < 36°C or > 38.5°C' **Deleted** Sequence step 'Signs of Systemic Inflammatory Response Syndrome (SIRS)' Sequence step 'Could this be a severe infection?' Instruction box 'Normal ranges (ICTS)' Instruction box 'Give three'

Appendix 4 - 2021 CPG Updates

New CPGs	The principal differences are:
	Instruction box 'If history of penicillin allergy assess the severity of the reaction and if not life-threatening, i.e. rash, proceed with Ceftriaxone' Instruction box 'If meningitis suspected ensure appropriate PPE is work; Mask and goggles' Instruction box 'Signs of inadequate perfusion' **Added** Sequence step 'SpO_2, BP, RR, $ETCO_2$ & ECG monitoring' replaces 'ECG, SpO_2 & BP monitoring' Mandatory sequence step 'Abnormal physiology? Source of infection considered' Decision process 'Sepsis Red or Amber Flag +/- risk factors' Decision process 'Evidence of inadequate perfusion' Instruction box 'Titrate $SpO_2 \geq 94\%$' Instruction box 'Sepsis Red Flag (≥1 item) – Altered mental status (P or U on AVPU) – Inappropriate tachycardia – Prolonged central capillary refill – Non-blanching rash – Hypotension – Clinical deterioration' Instruction box 'Sepsis Amber Flag (≥ 1 item) – Inappropriate tachypnoea – Altered functional status – Practitioner concern – Parental concern – Vital signs deterioration – Risk factor(s) +/- Immunocompromised – Age ≤3 months – Chronic disease – Recent surgery – Break in skin (including chicken pox) – Indwelling line/device – Signs of infection in wound – Incomplete vaccination record' Sequence step 'Monitor clinical condition; re-evaluate for possible sepsis if clinically indicated' Decision process 'Clinical status improving' Decision process 'Consider 2nd fluid bolus' Instruction box 'High Consequence Infectious Disease (HCID) ensure appropriate PPE is worn; Long sleeve gown, Facemask, Eye protection' Special instruction box 'If infection advise Triage nurse' replaces 'If SIRS + infection advise Triage nurse' **Medication Update** Paracetamol PO dose is revised to 15 mg/kg
CPG 4/5/6.13.21 **Allergic Reaction/ Anaphylaxis - Paediatric**	**Medication Updates** Chlorphenamine age specific doses IM/IV are revised Hydrocortisone age specific doses IM/IV are revised Adrenaline (1:1000) age specific doses IM are revised

Appendix 4 - 2021 CPG Updates

ADVANCED PARAMEDIC

New CPGs	The principal differences are:
CPG 4/5/6.13.22 Basic Life Support Paediatric	**Added** 'Consider changing defibrillator to manual mode' is a non-core element for Paramedic level
CPG 5/6.13.26 **Post-Resuscitation Care – Paediatric**	**Deleted** Instruction box 'Titrate O_2 to 96% - 98%' **Added** Sequence step 'Maintain target temperature' replaces sequence step 'Prevent warming'
CPG 4/5/6.14.1 **Basic Life Support – Adult**	**Added** 'Consider changing defibrillator to manual mode' is a non-core element for Paramedic level
CPG 4/5/6.14.2 **VF or pVT – Adult**	**Added** Mandatory sequence step 'Defibrillate' replaces 'Defibrillate (escalating energy)' Consider treatment option 'Consider mechanical CPR assist' replaces consider treatment 'Consider mechanical CPR assist' and is a non-core element for EMT, Paramedic and AP level
CPG 5/6.14.3 **Asystole – Adult**	**Added** Consider treatment option 'Consider mechanical CPR assist' replaces consider treatment 'Consider mechanical CPR assist' and is a non-core element for EMT, Paramedic and AP level
CPG 4/5/6.14.5 **Pulseless Electrical Activity – Adult**	**Added** Consider treatment option 'Consider mechanical CPR assist' replaces consider treatment 'Consider mechanical CPR assist' and is a non-core element for EMT, Paramedic and AP level
CPG 5/6.15.1 **End of Life – DNAR**	The CPG is retitled 'End of Life – DNAR' (previously End of Life – DNR)
CPG 5/6.15.2 **Palliative Care - Adult**	The CPG is reintroduced as a non-core CPG **Medication Updates** Cyclizine 50 mg PO is deleted Haloperidol PO/SC dose is revised Glycopyrronium Bromide dose is revised to 200 mcg SC

Appendix 4 - 2021 CPG Updates

New CPGs	The principal differences are:
CPG 4/5/6.16.3 Triage Sieve	**Deleted** Decision process 'Can casualty walk' Decision process 'Is casualty breathing' Mandatory sequence step 'Open airway one attempt' Decision process 'Breathing now'
CPG 4/5/6.16.3 Triage Sieve (Contd.)	**Added** Decision process 'Catastrophic haemorrhage' Mandatory sequence step 'Apply and mark a tourniquet' Consider treatment option 'consider applying a dressing impregnated with haemostatic agent' is a non-core element for EMT level Decision process 'Is the casualty injured' Destination 'Survivor Reception Centre' Decision process 'Can the patient walk' Decision process 'Airway (open) & Breathing' Decision process 'Respond to Voice (AVPU)' Mandatory sequence step 'Recovery position'

Appendix 4 - 2021 CPG Updates

ADVANCED PARAMEDIC

New CPGs	The principal differences are:
CPG 6.17.1 Clinical Care Pathway Decision – Non-conveyance Adult	The CPG is retitled 'Clinical Care Pathway Decision – Non-conveyance Adult' (previously Clinical Care Pathway Decision – Treat & Referral) and is reintroduced as a non-core CPG The CPG entry point is updated to 'Consideration for non-conveyance' Paramedic level is removed from this CPG **Deleted** Clinical finding 'Non serious or non-life threat' Instruction box 'Vital sign – Normal range' **Added** Decision process 'Patient declines assessment, treatment and/or transport' Sequence step 'Determine validity of decision a) Voluntary b) Informed c) Relevant d) Capacity e) Advice' Decision process 'All generic inclusion criteria met' replaces 'All generic inclusion criteria present' Decision process 'CPG for referral available for condition' replaces 'CPG for treat & referral available for condition' Sequence step 'Explain clinical pathway options to patient' replaces 'Explain clinical pathway options to patient and carer' Decision process 'Patient accepts non-ED care' replaces 'Patient & carer accepts non-ED care' Instruction box 'If the patient expresses a wish to attend an Emergency Department and is deemed suitable for non-conveyance, agreed alternative arrangements may be made for transport to ED.' Instruction box 'General patient inclusion' is significantly revised. Instruction box 'A shared decision should be agreed if a medical practitioner is present in relation to transport /non-conveyance.' replaces 'If medical practitioner is present; follow direction on transport decision' Instruction box 'Aid to Capacity Evaluation' which outlines the four requirements to determine if a patient has capacity to make a decision Instruction box 'Clinical Care Pathway options' is significantly revised

Appendix 5 - 2023 CPG Updates

New AP CPGs in 2021 Edition (Updated June 2023)

To support upskilling of the 2023 updates to 2021 CPGs, new CPGs are identified below.

New CPGs	The new skills and medications incorporated into the CPGs are:
CPG 4/5/6.8.11 **Trauma Triage Tool**	This CPG outlines the approach to triage and appropriate destination decision-making for trauma.

Updated AP CPGs in 2021 Edition (Updated June 2023)

To support upskilling of the 2023 updates to 2021 CPGs, CPG changes are identified below.

CPGS	The principal differences are:
CPG 5/6.1.6 **Secondary Survey Trauma - Adult**	Deleted Markers for multi-system trauma information and decision process boxes Revised Trauma Score information box Added 'Major trauma positive during primary survey' decision tree box 'Consider prompt transport' mandatory sequence step box
CPG 4/5/6.5.3 **Glycaemic Emergency**	Deleted Information box '
CPG 5/6.6.3 **Seizure/Convulsion - Adult**	Added If patient recommences seizing, regard it as a new event and administer an additional dose then consider medical advice
CPG 5/6.8.10 **Traumatic Cardiac Arrest CPG**	Added Decision box for 'Apnoeic, Pulseless'added to EMS Witnessed Traumatic Arrest string Decision box for EMS unwitnessed Traumatic Arrest amended to include asystole option and 'Defibrillate' option added to VF/ VT
CPG 4/5/6.10.1 **Allergic Reaction/ Anaphylaxis**	Added Information box 'Autoinjectors should not be used by healthcare professionals unless only source available'
CPG 4/5/6.11.1 **Sepsis - Adult**	Added Indications for antibiotics box

Appendix 5 - 2023 CPG Updates

ADVANCED PARAMEDIC

CPGS	The principal differences are:
CPG 5/6.12.3 **Malpresentations**	Added Instruction box added 'Initiate transport at earliest opportunity/ Pre=alert labour ward/ Optimise resuscitation of mother'
CPG 4/5/6.12.7 **New-born neonatal care and resuscitation**	Deleted 'Every 2-3 sec' from first PPV sequence step box Added PPV rate: 40-60 breaths per minute instruction box
CPG 4/5/6.13.9 **Stridor - Paediatric**	Deleted Dexamethasone IM Signs of Croup information box Added From Severe croup box, Epiglottitis Yes/No option added Signs of croup information box divided into mild, moderate and severe Medication updates Dexamethasone IM route deleted
CPG 4/5/6.13.11 **Glycaemic Emergency - Paediatric**	Deleted Information box ' Advice re non-diabetic Added In a non-diabetic hypoglycaemic patient glucagon is unlikely to be effective'
CPG 4/5/6.13.13 **Pain Management - Paediatric**	Medication Update Paracetamol via PR route is now added to the paramedic scope of practice
CPG 5/6.13.14 **Seizure/Convulsion - Paediatric**	Added If patient recommences seizing, regard it as a new event and administer an additional dose then consider medical advice
CPG 4/5/6.13.19 **Pyrexia - Paediatric**	Medication Update Paracetamol via PR route is now added to the paramedic scope of practice
CPG 4/5/6.13.20 **Sepsis - Paediatric**	Medication Update Paracetamol via PR route is now added to the paramedic scope of practice

Appendix 5 - 2023 CPG Updates

CPGS	The principal differences are:
CPG 5/6.17.xx **Clinical Care Pathway Decision – Non-conveyance Adult**	Added Included in Paramedic scope of practice as non-core CPG
5/6.17.2 **Hypoglycaemia – Non-conveyance Adult**	Deleted Decision box 'abnormalities on 12 Lead ECG'
5/6.1.3 **Isolated Seizure – Non-conveyance Adult**	Deleted Decision box 'abnormalities on 12 Lead ECG'
5/6.17.4 **Toothache – Non-conveyance Adult**	Deleted Decision box 'abnormalities on 12 Lead ECG'

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